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ABSTRACT

This review discusses the literature on developmental readiness for school. Specifically included are annotations of articles on the following topics: academic failure and grade retention, failure and retention for immaturity alone, the concept of developmental readiness, chronological versus developmental age, testing of developmental readiness, procedures to follow when a child's developmental readiness is questioned, the results of "overplacement," and ways to set up a developmental readiness program. The document also includes two sample presentations on developmental readiness, one for parents and teachers and one for school boards. The final section contains a summary of the grade retention studies reviewed and offers conclusions and recommendations. In particular, it is concluded that: (1) chronological age gives no assurance of a child's readiness to undertake schoolwork; (2) children who are delayed in overall maturation can be predicted to fail academically; (3) repeating a school year for reasons of immaturity is a "gift of time" for the child; and (4) developmental readiness screening tests can predict future academic success or failure. Recommendations are given for implementing school retention policies, changing the age for school admission, instituting transitional pre-kindergarten or pre-first-grade classes, and informing educators and the community of the developmental readiness literature. Directions for future research are also proposed. (CB)

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"READY OR NOT, HERE THEY COME"

A Sourcebook
on Developmental Readiness
For Parents, Teachers, and School Boards

by
Marian J. King

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A Project Submitted to
Dr. Dee Schilling
in Partial Fulfillment for the
Degree of
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TITLE: "Ready or Not, Here They Come"
A Sourcebook
On Developmental Readiness
For Parents, Teachers, and School Boards

At a time when the public school system in this country is under ever increasing pressure for accountability and state legislatures are beginning to mandate proficiency and promotion standards, it becomes more and more urgent to ascertain the causes and/or symptoms of school failure, particularly of children who are intellectually capable and show no sign of physical and learning disabilities. Moreover, the trend that recently has surfaced throughout the country of parents pushing their children into earlier and earlier formal education raises again the often debated questions of when and how does formal education become effective.

Pointing to the fact that formal education obviously requires the involvement of every aspect of a child's total being (physical, emotional, social, as well as intellectual), advocates of developmental readiness warn that the youngsters' unreadiness or immaturity in any given area may put them at a disadvantage as they start school, even when they are intellectually normal or superior. If these children are not as yet suited to sustain the requirements of the school program, the consequent emotional, social, and physical stress on them will hamper their academic performance and their continuous effort to survive in the school environment may soon exhaust them into early "burned out" victims. It is this developmental readiness, proponents claim, and not an early start, that will assure any student the strength to continue to function comfortably in the school environment and to sustain the tasks of academic learning.

To ascertain the validity of these assumptions and claims, this project reviews the literature on developmental readiness. After having taken notice of the validity and soundess of research and studies on the subject, this project offers presentations to parents, teachers and school boards to acquaint them with the concept and implications of developmental age, not necessarily chronological age, as the factor that determines school success or failure. Included in the project are recommendations to parents, teachers and school boards and a timetable for the implementation of a school district Developmental Readiness Screening Program for all incoming students.

Without entering the controversy of whether or not academically failing students should be retained, this project does recommend that all

incoming kindergarteners and/or first graders be tested for developmental maturity so as to determine their overall readiness for school work.

Whenever developmental readiness is questioned, a recommendation is made to the parents to delay the child's entrance or that the child be placed in a prekindergarten or prefirst class, if available. When children who have already been admitted, with or without prior developmental screening tests, show signs of overplacement or symptoms of academic/social maladjustment, a recommendation is made to parents to retain their children in the same grade for another year, even when they are academically proficient, so as to allow the children more time to grow developmentally and to adjust more comfortably to the school environment and thus avoid the danger of "burning out."

School boards who are contemplating the implementation of a developmental screening program in their district are urged to proceed with a clearly spelled out step by step timetable, without haste, and to carefully educate first the whole school community (parents, teachers, administrators) before any further step in the implementation of the program is taken. Finally, the school boards are urged to make sure that those who will administer and supervise the program are properly and carefully trained to fulfill their responsibilities with competence and professional expertise. The welfare and correct placement of many children is at stake, as well as the success of the district's policies on promotion and retention.

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CHAPTER I

The Problem

Background

Almost every teacher has encountered at some time in his or her teaching career a student who is experiencing academic problems in school, and yet there is no indication of any brain damage, perceptual handicaps, abnormally low intelligence, or emotional disturbance, all factors that can contribute to school problems. If all these factors are ruled out as the cause for the student's difficulties, what then could be the cause when physically and intellectually healthy children do not succeed in school? Ilg and Ames (1978) suggest that the lack of developmental readiness could be the answer to this question. Developmental readiness is the age at which a child is behaving as a total organism - a functioning age (Carll and Richards, 1977). A child may be intellectually ready for school work, but incapable of sitting still, of listening to instructions, of following directions and of adjusting to the school environment. It is obvious that this child is not yet ready to undertake formal education in a school setting. It would be more appropriate to allow him or her more time to mature. And yet a new trend is sweeping the country, the trend of "Bringing Up Superbaby" (Newsweek, 1983), or "Raising the Superkid" (McCalls, 1983), that has parents pushing their babies to start formal learning earlier than ever.

Notwithstanding the landmark findings of Piaget and Gesell on developmental growth, these "superbabies" will be pushed by their proud parents into entering the classroom earlier than ever since they "already know how to read and write." But will they be developmentally ready to sustain the stress of formal classroom education? It is the intent of this project to point out that no matter how intelligent the children may be, entrance into school before they are developmentally ready could set them up for failure.

Currently many state legislatures across the country, responding to the cry of "back to basics," are promulgating laws requiring school accountability and setting legislative standards for promotion and retention. (Cfr., for ex., Calif. SB 813.) School administrators and school boards are coming under ever increasing pressure to set specific proficiency standards for promotion or non-promotion of their students. While California's new Hart Bill (AB 3408) does not address the question of promotion, it does require standards of proficiency before a high school diploma will be issued. If retentions are to be made, it is crucial to sound educational planning to know the most optimum time for this decision. Children's emotional health, as well as academic growth, must be considered (Turley, 1982).

Purpose of the Project

The purpose of this project is to offer an understanding of developmental readiness as a prerequisite for school success. This understanding will be achieved by a thorough review of developmental readiness literature. This information will be shared with parents and teachers who are primarily interested and responsible for the welfare of the children entrusted to their care. It will be shared also with school boards which, by legislative mandates, are now expected to draft district policies for grade retention and promotion (Calif. SB 813) and to set proficiency standards for graduating students (Calif. AB 3408).

Finally, this project intends to offer some recommendations to school boards for the establishment of a district-wide developmental screening program for incoming kindergarteners and primary grade children to ascertain their capability to fit into the school environment.

Relevance and Importance of the Project

The educational system in this country has presently come under serious attack because of academic mediocrity. It is claimed that the school system has failed to educate and is granting diplomas to "illiterate" students. Although a valid case could be made to prove that these accusations are generally unfair, unjustified, and unfounded, school boards and educators are coming under increasing pressures for accountability. Laws have been passed by state legislatures requiring each school district to set standards for promotion and retention of students. School administrators will recommend policies that hopefully will assure better results. It becomes crucial, therefore, to ascertain when a child would benefit most from retention, not only because the welfare of the child is at stake, but also because the efficacy of the school district policies is at stake as well. Since the overall academic performance of the student is not only a matter of intellectual proficiency, but also of the interaction of many other factors, it is of utmost importance to determine which factors are conducive to school success and which will almost assure school failure. In an article entitled Precursors of School Failure, Oberklaid and Levine (1980) identified nine common "precursors" of school failure and offered appropriate advice to schools as to which children in a preschool program may be expected to have educational difficulties. Agreeing with this assessment and believing that school failure can be predicted and prevented, developmental readiness advocates point out that children must first reach a certain degree of overall maturity (physical, social, emotional) before they may profitably undertake formal education in school and that chronological age alone is not a guarantee of school readiness. They attribute many school failures of children who are intellectually capable to their overall immaturity. It is their contention that, given the "gift of time", these children would eventually mature and be ready to begin formal education. It is of utmost importance, therefore, particularly today for the reasons expressed above, to evaluate the validity of the claims that developmental readiness is a factor that determines school success of intellectually normal children. This will be done by reviewing the pertinent literature. If the validity of the claims can be ascertained, this finding can be invaluable when decisions about school policies for retention or promotion are to be made.

Finally, at a time when many parents across the country are inclined and/or pressured to start their children into formal education earlier and earlier, it is important to ascertain if this trend will be beneficial or harmful to the children in question. What is at stake here is not the pride of these well meaning and determined parents, but the right of the child to get a correct start, not a head start, in learning.

Practical Implication of the Project

The practical intent of the project is to provide parents, teachers, and school boards with information from the literature and research on developmental readiness so they can then predict success or failure in school performance. A number of developmental readiness screening tests are presently available, particularly the Gesell School Screening

Test, which has been proven to be an effective tool for ascertaining developmental maturity. Since these screening tests have to be properly evaluated - there are no numerical results, no "right" or "wrong" answers - it is important that they be administered to children by a qualified examiner who will then evaluate the results, not only on the basis of the tasks required, but also on the basis of how the tasks have been handled by the child, and then offer recommendations to the child's parents, teacher, and school principal. When a presentation on developmental readiness is given to parents, teachers or school boards, the decision to postpone entrance into kindergarten or to retain in kindergarten or primary grades is left to the parents; and the decision to set school policies based on developmental readiness is left to the school board. It is also a practical implication of this project to provide guidelines and recommendations for the proper implementation of a school district developmental readiness screening program and/or recommend to the school board that postponement of kindergarten entrance or retention in kindergarten to be adopted as a policy of the school district if developmental readiness is questioned.

Definition of Terms

Definitions of the following terms are quoted from One Piece of the Puzzle by Barbara Carll and Nancy Richards (1977, p.2) unless otherwise stated.

Developmental Age - the age at which a child is behaving as a total organism - a functioning age.

Chronological Age - the amount of time that has elapsed since an individual's birth (Dictionary of Education, Carter V. Good).

Social Development - Emotional Maturity - the ability to adapt or adjust to standards of group behavior; the ability to be away from home for a long period of the day; the ability to relate to other children; the ability to be capable of meeting work standards set by the teacher without becoming upset and evidencing undue anxiety; the ability to be a happily coping child in the new school environment (Hedges, 1977).

Developmental Growth - progress in emotional stability, intellectual maturity, and social competence as well as physical growth. Perhaps most importantly, it means advancement of the integration process - advancement in differentiation - an increase in complexity of function.

School Readiness - ability to cope with the school environment, physically, socially, and emotionally, as well as academically without undue stress. This includes the capacity to shut out extraneous visual and auditory distractions and concentrate on the learning at hand, and enough self-confidence not to use up too much energy in worry.

School Success - achievement without undue stress. Learning with enough spirit and energy left over to develop into a well-integrated person.

Overplacement - being in over one's head - being in a school situation which is causing strain to the organism.

Retention (non-promotion) - the repeating of a specific grade by a child who has not mastered the necessary academic skills and/or the developmental readiness required by that grade.

Formal Education - education in a school setting, as opposed to a home setting, or quasi-school setting, such as a nursery school.

CHAPTER II
Review of Pertinent Literature

Introduction

This chapter will review the literature pertinent to this project and will organize it in such a way as to offer background information for the presentations to interested parents, teachers, and school boards.

Therefore, this chapter is briefly organized as follows:

I. Studies on failure and retention
II. Studies on failure and retention for immaturity reasons alone
III. Developmental Readiness
IV. Chronological versus Developmental age
V. Testing Developmental Readiness
VI. What to do when Developmental Readiness is questioned
VII. Results of overplacement
VIII. How to set up a Developmental Readiness Program

I. Studies on failure and retention

An enormous amount of research has been undertaken to evaluate grade repetition, since the concept of grades was initiated in Boston in 1848 making chronological age the main criterion for grade placement, expected academic performance, and pupil behaviors. From a seven-year study in a school district of about five thousand pupils reported by Keyes in 1911 to a 1970 research project involving twelve thousand students by Godfrey, the "overwhelming majority of the studies reveal that not only is this practice of retention of no benefit to the child, but often it is harmful" (Turley, 1982, p.4). One would conclude that this question had been settled once and for all.

And yet today, despite the long history and extensive studies of grade retention, the issue remains as controversial as ever. In an educational system that is generally geared to judge performance of students according to acceptable achievements at each grade level, the most popular and apparent remedy for failing students is retention. In an article written for ERIC summarizing the research to date on grade retention and social promotion, Lindelow (1982) gives this synthesis of the arguments of proponents and opponents of retention: Proponents of retention argue that students who do not understand the material at one grade will find it difficult or impossible to benefit from material at the next level. Retention gives slow or maladjusted students time to come up to grade level and reduces the range of abilities within each grade. Retention is also seen by many educators as an appropriate remedy for students who are immature.

Proponents of social promotion believe that simple grade repetition does no more good for academic achievement than promotion to the next grade. Instead of being given remedial help, repeaters are most often recycled through a program that was inappropriate for them the first time and that may be equally inappropriate and of less interest to them the second time.

Furthermore, say critics of grade retention, the stigma of flunking is damaging to the social and personal development of low-achieving students; it starts a snowballing cycle of failure that may extend into adult life. But as far back as 1941, as reported by Lindelow (1982), Cook had already criticized the notion that social promotion alone will solve the problems of school failure:

> If a child fails daily in his school work throughout a year and is then transferred to the next higher grade, where he continues to meet daily failure, it is absurd to assume that anything has been done to restore his confidence in himself and his ability to succeed in educational situations" (p. 471).

Lindelow, therefore, concludes by saying: "Researchers have thus far been unable to demonstrate the superiority of either practice" (p.471). However, since state legislatures have sidestepped the controversy and are calling for "proficiency standards," at least in certain grades, in the years to come a substantial number of children will be required to - and will - repeat grades.

Even in ungraded schools, children will be required to have achieved more proficiency in their subjects in order to be promoted. Thus it is becoming worthwhile again to check on earlier findings, which for the most part claim to show that repeating does not improve school marks and does result in emotional damage, in order to ascertain their validity. According to Lindelow (1982), by far the most valuable publication dealing with the retention-promotion debate is Jackson's 1975 review of the literature on the effects of grade retention. His central but lamentable conclusion is that, despite extensive research on grade retention, most studies published up to mid-1973 are "quite inadequate for making valid inferences about the effects of grade retention." And despite Jackson's recommendations for research designs and methodologies that would yield meaningful results, no definitive studies have been published since his review. In the meantime teachers and administrators who had been faced with the problems of failing students have developed other alternatives to the dilemma of either promotion or retention. Alternatives have also been suggested by many researchers.

For example, in 1970, Lindelow reports that Reinherz and Griffin proposed "transitional maturity" classes for children between kindergarten and first grade who aren't yet ready for academic learning. "Such a procedure, as well as ungraded classes," they state, "would cut the educational bed of Procrustes to fit the child, not cut the child to fit the bed" (Lindelow, 1982, p.473).

Dobbs and Neville note that low achievers continue to experience failures whether promoted or retained unless classroom activities are adjusted to the ability level of the individual child. They suggest systems of continuous progress, ungraded classes, ability grouping, remedial instruction, and smaller classes with more individual instruction.

In school where these kinds of options have not yet been developed, educators can use the small amount of research and decision -making instruments to determine which students might benefit most from retention. Using this information and a large dose of good judgment, teachers and administrators can carefully decide whether retention or promotion will better serve the total development of each child. It is clear, though, concludes Lindelow, that unless real efforts are made to adjust the present system to the special needs of low-achieving students, both social promotion and grade retention will contunue to exacerbate these students' failings.

This is exactly what some researchers and educators are now trying to do, first by determining the factors that contribute to success or failure in school, and then by trying to adjust the system to the needs of low-achieving students.

II. Studies on failure and retention for immaturity reasons alone

The most recent research studies on failure and retention do not compare the average scores of students retained and promoted, but concentrate on sorting out and identifying the characteristics of those students who seem to benefit most from retention. In 1954, Lobell, for example, was able to report that

> careful selection of the children who are to repeat a grade, guided by definite criteria . . . can bring about success, during and after the year of repeating, for a larger percent of children than previously available data might lead one to expect (p. 337).

The Chase Study (1968)

In 1968, Chase studied the effectiveness of the retention of sixty-five first, second, and third-graders. Only those children whom teachers considered to be basically normal but immature for their grades were included in her study. Subjects were on the average twenty-one months behind the expected level of chronological peers when examined on behavior tests at the beginning of this study. Findings bore out the original hypothesis that repeating a grade will engender no negative social or emotional effects on children when school failure is based primarily on immaturity. Teachers interviewed felt that repeating had met the needs of 75 percent of these children and had produced no emotional upset whatever in 78 percent of them. Parents, 95 percent of whom said they were in favor of repeating, reported that the children liked school better than they had the year before, felt more confident and more successful in school than they had the year before, and were happy, easy to live with at home, and getting on well with friends since repeating. Understandably, the sample of the study was quite limited, but a clear characteristic of "youngness" - average of twenty-one months behind chronological age - was identified as the cause of school failure. Retention in this case proved to be very beneficial and not harmful at all.

The Scott and Ames Study (1969)

Reflecting on the need for further information, Scott and Ames (1969) undertook a study of their own in Cheshire, Connecticut, to determine the effects of retention when done for developmental immaturity alone. Having reservations about earlier research findings, which for the most part claimed to show that repeating does not improve school grades and does result in emotional damage, they set out to test the validity of the opposite assumption. They contended that, "If repeating does work, if it succeeds in improving children's marks without harming them emotionally, this fact should be established" (p.431). The subjects for this study were 27 elementary school children: 5 were retained in kindergarten; 14 in first grade; 3 in second grade; 3 in third grade; 1 in fifth grade and 1 in sixth grade. Their ages ranged from 5-12 years.

Only children whose repeating a grade had been determined solely on the basis of immaturity were included. In some instances, this immaturity had been determined on the basis of a behavior examination; in others, on the basis of the teacher's and principal's judgment. Only children with an intelligence quotient of 90 or higher were included, and no brain damaged or emotionally disturbed children were included.

Children's final grades in June, 1966 (before they repeated) were compared with their mid-year grades in February, 1967 (the repeat year). Furthermore, teachers were asked to fill out a questionnaire evaluating the pupils' attitudes and progress during their repeat year and parents were asked to fill out a questionnaire evaluating their children's attitudes toward school during the repeat year as compared with attitudes the preceding year. Every single child received higher marks after repeating than s/he had the previous year. The marks of the group as a whole indicates the striking improvement in the academic rating of this group of children: In the 1965-66 school year, nine pupils had a "D" average; in the 1966-67 school year, no pupil had a "D" average. In the 1965-66 school year, thirteen pupils had a "C" average; in 1966-67 only four pupils had a "C" average. In 1965-66 only three pupils had a "B" average; in 1966-67 eighteen pupils had a "B" average. In 1965-66 no pupil had an "A" average; after repeating, three pupils had an "A" average. Since the two sets of marks were based on one set of pupils, the subjects acted as their own controls. The advantage of this design is that it minimizes individual differences. To test correlated samples, one assumes that the mean change in their marks is zero. The t value of 11.21 indicates that the probablility of no mean change is less than

$<.001$.

Striking improvements were reported by teachers and parents on the overall behavior of their children. To a statistically significant degree, improvement was shown on seven of the nine items. Items for which significant improvement was reported included general attitude toward school, attitude toward schoolwork, getting along with schoolmates, lessening of fatigue, getting ready for school in the morning, and sense of responsibility. Health improved, though not to a statistically significant degree.

According to the earliest literature, children who are required to repeat a grade do not do better academically, do worse socially, and tend to be emotionally disturbed by the fact of repeating. More recent studies suggest that repeating may be effective and harmless. The present study suggests that for children who are required to repeat a grade because of immaturity only, the repeating may be accompanied by no emotional or social difficulties and may result in improved grades. Academic performance, as measured by grades received, improved to a statistically significant degree for every one of the twenty-seven children who had to repeat a grade because of immaturity alone.

Thus for this group of selected subjects, repeating did appear to have a beneficial effect, not only on grades but also on the children's school behavior as reported by their teacher, and on school and home behavior as reported by parents.

A similar study was conducted in 1970 by Reinherz and Griffin who followed 57 boys of normal intelligence who were repeating for the first time in grades one through three. They found that a large proportion of children characterized as 'immature' made 'satisfactory achievement' during the retained year compared to children with less evidence of immaturity. Over 80 percent of the first-graders made satisfactory achievement, whereas less than half of the second and third graders made equivalent progress. Children with good or excellent peer relations and children with good or excellent social and emotional adjustment also made significant progress. These findings support the beliefs of many educators, conclude the authors, that retention is most useful for normal but immature students in the early grades (Lindelow 1982).

Drawing on findings such as these and on his own studies, Lieberman (1980) compiled a list of factors that should be considered before making the decision between promotion and retention. Included in the list are: child factors, such as physical size, maturity, grade placement, age, self-concept, and attitude toward promotion; family factors, such as transiency, language spoken in the home, and age of siblings; and school factors, such as the attitudes of principal and teacher toward retention, the availability of personnel and special education services.

The Oberklaid and Levine Report (1980)

Contrary to Lieberman's somewhat vague approach to retention factors, Oberklaid and Levine (1980) take a totally clinical approach and list nine factors that they consider as precursors of school failure. It is worthwhile to present them in some detail because these factors are closely related to the concept of developmental readiness, the myelination process, and the purpose of this project. The nine factors are:

1. Poor Selective Attention
2. Language Disability
3. Temporal-Sequential Disorganization
4. Visual Processing Weakness
5. Motor Dysfunction
6. Chronic Health Problems
7. Neurologic Disorder
8. Behavioral/Social Maladaptation
9. Environmental and Sociocultural Stresses

1. Poor Selective Attention

Selective attention entails the ability to set priorities among a multitude of internal and external stimuli in order to focus or concentrate on the most meaningful or useful information at any given moment. The capacity to regulate and sustain attention normally grows with age and maturity. Children who are erratic in their selective attention are heterogeneous with respect to etiologies and patterns of behavior. They often exhibit the following traits in varying degrees: poor modulation or selection of motor output (hypo- or hyperactivity); fidgetiness; impulsivity (including poor planning and self-monitoring); easy distractibility; lack of persistence at tasks; emotional lability; inordinate difficulty in becoming satisfied (insatiability). Preoccupation due to anxiety or depression may also be responsible for attentional problems.

Academic Impact:

Children with attention deficits may be handicapped in a regular classroom. Their erratic, unpredictable, and disorganized behaviors make learning a struggle for the child and teaching an exasperation for the teacher. Their difficulty in modulating activity may result in distruptive behavior and inappropriate, purposeless motor output. Inattention, erratic concentration, distractibility, and impulsivity impede learning and achievement. Analysis of poorly selective attention should be undertaken in the context of a comprehensive evaluation that includes evaluation of a child's developmental status, coping styles, and home and school environment.

2. Language Disability

Language competence is germane both to academic and social development. It becomes increasingly important with age. Skill with words includes the ability to interpret verbal information accurately and rapidly and to process and integrate it with existing knowledge. A child with delayed language development may have difficulty comprehending instructions. He or she is easily "overloaded" with words and may not be able to assimilate verbally presented concepts or directions despite repeated explanations. Children with expressive language disorders may be slow to find the right words at the right times. They may also have problems utilizing syntax, organizing narrative, or articulating clearly. They may then develop feelings of self-consciousness and anxiety, ultimately impairing peer relationships and affecting behavior both at home and in the classroom.

Academic Impact:

A child with a language disability often has trouble following instructions in the classroom. There may be delays in acquiring skills in reading, writing and spelling. A child with language problems may become inattentive and drained of motivation for school-related activities. Some preschool assessment procedures contain sections that screen both receptive and expressive language. Commonly assessed are: articulation, vocabulary, auditory memory, and verbal comprehension.

3. Temporal-Sequential Disorganization

Some young children have difficulty mastering concepts of time and serial order. A sizeable proportion of life routine and classroom learning has as its basis a multiplicity of sequences, ranging from simple concepts such as the order of meals and the days of the week, to complex serially presented instructions. Some youngsters with sequencing problems have difficulty interpreting and retaining explanations and directions, especially when their meaning entails preservation of order.

Academic Impact:

Sequencing problems may lead to generalized deterioration of classroom performance. The child may recall only one of a multistep instructional sequence or become confused about the order. He or she may experience great difficulty in acquiring skills in reading, spelling, and writing. There may be difficulty in learning to tell time, adhering to a schedule, organizing work, mastering mathematical concepts, and ultimately organizing written or spoken narrative in appropriate order.

4. Visual Processing Weakness

Children with visual processing deficits may experience difficulty interpreting visual data and dealing with spatial relationships, such as the size and position of objects in relation to each other, foreground-background discrimination, and the appreciation of details in relation to an overall whole or "gestalt". The child with visual processing dificits may be relatively inept at copying letters, numbers, or geometrical shapes. Letter reversals may persist beyond the preschool period. Tasks requiring eye-hand coordination such as tracing, doing puzzles, or catching a ball may be unduly problematic.

Academic Impact:

Children with visual processing problems may have difficulty distinguishing between similar letters of the alphabet. They may experience problems with copying or drawing. They may be slow to acquire letter and word recognition skills. There may be trouble recalling or revisualizing the spatial appearance of words, leading to problems with spelling and writing, as well as reading. Such children may have difficulty with organizing work on a page; this may result in a generally "untidy" appearance and the apparent commission of careless errors.

5. Motor Dysfunction

Efficacy in mobilizing large and small muscle groups affects school performance in a number of ways. A child's gross motor, (i.e., overall muscle coordination) appears to influence body image and self-esteem. Fine motor (i.e., manipulative) ability is associated with eye-hand coordination, finger localization awareness, and ultimately writing and drawing skills.

Academic Impact:

Children with gross motor delays may withdraw from participation in sports and other activities, and this may in turn impair social development. Feelings of inadequacy can emerge and ultimately compromise performance in other areas. Fine motor weaknesses are likely to have their most significant impact with regard to written output. Children with fine motor delays may be awkward, slow, and labored in their writing. They may decompensate when the demand, volume, and rate of written output increases in late elementary or junior high school.

6. Chronic Health Problems

Recurrent or chronic illnesses may predispose to academic failure. However, a causal association between early life morbidity and later school failure can seldom be proven in an individual case. For example, infants born prematurely may be at risk for later developmental difficulties, but environmental factors, including social class, family stability, and early life experiences may act as potent modifiers of outcome. A number of acute and chronic health conditions may have a negative impact on development and in some instances affect school function. These include meningitis, seizure disorders, lead intoxication, and recurrent otitis media together with vision and hearing deficits.

Academic Impact:

The effects of significant illness on school performance may be mediated through a number of distinct processes including excessive absenteeism, deficient sensory function, altered family dynamics (e.g., parental overprotection) or medication effects. In addition, children with chronic disease frequently exhibit poor self-esteem and secondary emotional problems that may further compromise learning. Children whose medical histories render them "at risk" should be monitored particularly carefully with regard to their development and behavior prior to entry into school.

7. Neurologic Disorder

Cerebral palsy, seizure disorders and other neurologic problems may compromise learning. Fortunately, clear-cut organic conditions of these kinds are relatively uncommon in general pediatrics. Some children may manifest minor neurologic indicators (sometimes called soft signs) that have been interpreted as signifying a delay in the maturation of the central nervous system. Synkinetic movements, dystonic posturing with motor tasks, poorly established hand preference, and trouble with rapid alternating movements are examples of these signs of minor neurologic dysfunction.

Academic Impact:

Children with fixed neurologic deficits may be compromised in any developmental area. Children with signs suggestive of more subtle neurologic dysfunction may be particularly difficult to "diagnose" during the preschool years. Ultimately they may demonstrate the persistence of minor neurologic indicators, a finding often associated with learning problems, attentional difficulties and/or other behavioral manifestations. Children who have such indicators should be monitored over time. Persistence of multiple signs of neuro-maturational delay beyond age 7 years is often associated with learning problems.

8. Behavioral/Social Maladaptation

A wide spectrum of difficulties with behavior and social interaction may constitute antecedents of school failure. Diverse constitutional and environmental factors may predispose to maladaptive behaviors. Poor peer interaction, difficulty accepting limits, excessive fearfulness, acting out tendencies, extremes of moodiness and particular characteristics of temperament represent tendencies that may indicate future problems in adapting to classroom learning situations. It is important to recognize however, that the school setting may turn out to be somewhat therapeutic for such traits, especially when they stem from domestic turmoil or family instability.

Academic Impact:

The capacity to establish strong peer relationships and to comply with the routines of the classroom are requisites of school adjustment. In some instances disruptive behaviors may represent a "noncompliant style." In other cases this may be an outward manifestation of underlying problems, feelings of incompetence, serious trouble at home, or strategies to save face. Chronic anxiety may interfere with a child's attention, while depression may be responsible for excessive fatigue and for poor motivation.

9. Environmental and Sociocultural Stresses

It is well known that children from disadvantaged environments are likely to experience a slower start in school than their more privileged classmates. Some such youngsters may have endured sub-optimal health and nutrition. Others may have had to deal with significant social stresses or a high degree of environmental disruption during the earliest years of life. Still others may have been under-exposed to a stimulating and educational environment. In some cases the structured, intensely verbal and highly organized classroom setting may induce a form of academic "culture shock" in youngsters from different sociocultural backgrounds. Many other environmental influences may predispose to school failure, pervading all social classes. These include domestic disruption, significant losses, family illnesses, and various forms of early deprivation and abuse. Often other members of the family have experienced school problems.

Academic Impact:

Children whose sociocultural backgrounds are markedly different from an academic setting may have difficulty acquiring basic academic skills. Linguistic barriers may impair learning. Many youngsters, however, show a high degree of resiliency and are able to achieve considerable academic success despite cultural gaps or difficult environments. A sense of the cultural characteristics of a family, an awareness of the ways in which they have reacted to stress, and understanding of their patterns of nurturance, and a knowledge of critical past events allow earliest access to potential environmental precursors of school failure.

Multiplicity of Precursors:

It is likely that children who manifest several of the above precursors of school failure are at significantly higher risk for academic problems than those with single well-circumscribed predispositions. A child with one area of weakness often is able to find and utilize compensatory strengths for learning and classroom function. A youngster with multiple handicaps clearly has more difficulty bypassing or strengthening areas of weakness. When environmental stresses or behavior problems complicate underlying developmental disabilities, it is likely that school failure will be more likely and devastating than in those cases where a child can adapt well despite a specific learning disorder. Similarly, children with limited cognitive abilities may have difficulty compensating for areas of weakness.

A competent developmental readiness examiner can play a vital role in recommending theraputic preschool programs, courses of language therapy, adaptive physical education programs or in recommending that the child be given more time to mature. In addition, the examiner can help to explain the developmental phenomena by pointing out that each child matures at his/her own rate and that nothing can be done to speed it up. On the other hand, a teacher who is aware of the developmental delay of the child may form a strong alliance with the youngster and be of invaluable help for the utilization of strengths rather than emphasizing weaknesses. As Oberklaid and Levine (1980) point out, "School failure is pervasive. Its impact extend beyond the classroom and can contribute to emotional turmoil, social difficulties, delinquent behavior and lifelong maladjustment" (p.5). Since it does not qualify as a disease, a syndrome or a pathological phenomenon, school failure is in most cases preventable and prevention can usually be achieved by careful developmental screening, preschool remedial help or, when developmental readiness is questioned, a year of retention.

In conclusion, the research on developmental readiness can be summarized in this 1969 statement of Scott and Ames which is still valid today:

> Research, even the most negative, does not necessarily prove that repeating is either useless or harmful. Repeating is not a panacea, even though in many schools it has been used as such. There is no reason to expect that repeating a grade will make success possible for the child who has an abnormally low intelligence quotient or for the child who is emotionally disturbed, brain damaged, or perceptually handicapped. Though going at a slower rate will reduce the pressure and thus make things easier for any school child who is having difficulty, it should not be expected to cure all school problems. All that repeating can reasonably be expected to do is to provide extra time needed because of immaturity and subsequent unreadiness for the work of a grade in question (p.434).

Drawing on the findings of these special studies, it seems, therefore, that the student who is likely to benefit most from retention is the normal child - the child who has no abnormally low intelligence quotient or who is not emotionally disturbed, brain damaged, or perceptually handicapped - who is still immature or unready for the work of the grade to which s/he has been assigned. Consequently, the remainder of this chapter will review the literature pertinent to maturity or developmental readiness for school work.

III. Developmental Readiness

To clarify the concept of maturity or developmental readiness, it should be stated that pertinent literature on the subject places no stigma or negative implications in terms such as "immature" or "developmentally unready". Experts on developmental readiness point out that each child grows at his/her own rate and generalizations - such as "girls develop faster than boys" - are to be taken for what they are: generalizations. Therefore, to make a correct judgment of the maturity or immaturity of a child for school, each child will have to be judged individually. They also point out that many factors contribute to the rate of growth of a chld, factors that control him/her and are beyond his/her capability to control them. Instead of being seen as a stigma, they recommend that "immaturity be respected and each child, like each daisy, be prized as it unfolds in its own time and manner" (Turley, 1982, p.101).

As Scott and Ames (1969) point out, immaturity may consist of sheer chronological youngness. The child may be one of the youngest in his class and thus merely young in years. Or, his behavior or developmental age may be below his chronological age. This latter aspect of a child's youngness is what educators define as unreadiness for school. Carll and Richards (1977), for example, define developmental readiness (maturity) as the age at which a child is behaving as a total organism - a functioning age. A child might very well be functioning at a six or even a seven year old level intellectually or in some other aspect of his development, but a composite of his whole development might place him at a five year old functioning age.

Since a child's learning, besides innate intelligence, is based on three factors - (1) developmental rate; (2) innate personality; and (3) environmental factors, including parent interaction (Ames, 1972), it is understandable that each child should be treated as an individual and should be accepted at the level of developmental readiness that he has been able to achieve so far. Neither chronological age nor intelligence quotient alone are a guarantee for school readiness or a reason for a child's grade placement.

Since it is claimed that the above statements and conclusions are based on the landmark studies of Piaget and Gesell and, more recently, on the findings of the process of myelination of the nervous system, particularly the brain, it will be useful to review briefly these studies and findings.

Piaget and Gesell

In the early 1900's, Arnold Gesell devised ways to document bit by bit the definable stages of a child's growth. And in Europe, Jean Piaget was observing in great detail a child's behavior from birth in order to ascertain how reality is constructed in his mind. Gesell used a rattle, a ring on a string, a cube, a pencil and paper; Piaget, a toy duck, a rattle, a watch on a chain, a doll. Simple tools and patient observation of behavior enabled these dedicated and brilliant scientists to draw conclusions about the most complicated of creation - human beings. Gesell often pointed out that behavior was shaped, behavior grows. The measures he devised document as closely as four week intervals in the first year of life the well-defined patterns of growth, and include most of the tests of development used in the Gesell examination to determine readiness for school. He demonstrated that school readiness is determined by a behavioral age, not a chronological or mental age. Piaget systematically observed children at play. He experimented and interviewed children over a lifetime, like Gesell, and developed a framework for understanding the dynamics of mental growth. Piaget's works, while coming from a different perspective, reaffirm the concept of developmental readiness for school that was demonstrated by Gesell and reflect his concern about educating children on the basis of chronological age (Turley, 1982).

Myelination

In an article about sensorimotor experience and brain growth, Sinatra (1983) makes some important observations on a child's readiness for school and warns that the contemporary tendency toward earlier and earlier reading and writing achievements may be actually detrimental to many youngsters. He explains the physiological ramifications of sensorimotor intelligence and how an active, exploring sensorimotor life of the child stimulates the verbal center of the brain, providing it with the raw material for discussion, reading, and writing. He then goes on to say that a major key to understanding how the two hemispheres of the brain eventually achieve a coordinated balance of verbal and non-verbal proficiency appears to be in the maturation of the corpus callosum and other important fiber systems which extend from the region of the brain stem to the cortex - the cognitive brain. He explains this process of maturation by the process of myelination. The process of nerve fiber maturation is called myelination. Myelination is the development of a fatty sheath around the nerve fibers, particularly the nerve axons. The axons conduct impulses from the cell body to thread-like projections called dendrites which transmit the coded message to adjoining cell bodies. The myelin sheath acts to facilitate electrical transmission through the neuron, since its axonal fiber is insulated just as an electrical cord is insulated for the transmission of electricity. Yakolev and Lecours have indicated that myelination of these horizontal and vertically arranged figer systems is hardly noticeable until about two years of age. Then, the corpus collosum and other commissures between the two hemispheres myelinate rapidly from two until seven years of age, while the fibers from the reticular formation to the hemispheres myelinate rather rapidly from two until twelve and continue maturing until old age.

Cited in Sinatra, Schnitker, also a neurologist, provides some examples of how myelination and growth rate harmonize. The first brain region to myelinate, he says, is the brainstream, and this region coincides directly with the physiology of nerve centers that control sucking, a necessary, voluntary life behavior for the newborn. Following birth, the myelin matures from the brainstream downward into the spinal cord and later upward from the base to the surface of the cortex. Following the myelin growth downward, most youngsters can hold their heads up by two months of age, place their hands in their mouths by three months, sit up at age six months, crawl at nine months, and finally begin to walk at about one year of age. Schnitker notes that the young tot cannot be made to walk until this myelination process is complete and similarly, once complete, nothing can stop the child from trying to walk. By 18 to 20 months, myelination will have been complete in some areas of the cortex so the child will have gained sufficient perception from what has been seen or heard to begin to talk. According to Yakolev and Lecours, this roughly corresponds to the age period when commissural myelination begins to be noticed (Sinatra, 1983).

Schnitker then provides another useful clue for the possible cause of slow reading and writing development and learning disabilities. He notes that not in all parts of the brain does the myelin mature at the same time, or at the same developmental rate in individuals. In some cases, there may be an actual maturational arrest. If the arrest involves a part of the brain that controls speech, the youngster may have a dysphasia (an inability to speak properly). If it involves a region that controls an interpretation of visual symbols, the learner may have a dyslexia. It is not difficult to see how these physiological myelin stages may correspond with Piaget's cognitive development stages. In other words, succession through the many growth stages noted by Piaget and Gesell seem to parallel the growth stages of myelin maturation (Sinatra, 1983). The major point for educators to realize, Sinatra concludes, is that the maturation of these fiber systems appears to relate to the very maturation of the youngster's cognitive and linguistic powers. When normal, alert, intelligent children are referred to "special needs classes" or reading clinics because they fail to read or write properly, it would be advisable first to test them for developmental readiness. Immaturity may be the only problem with which these children are faced (Ilg et. al., 1979).

IV. Chronological versus Developmental Age

Monroe (1955) suggests that the practice of enrolling children in school by age six first evolved from the fact that it was at age six that children were mature enough to leave home for the first time and travel the necessary distance to school. The problem of school entrance did not seem very difficult in earlier days because the groups were small and there was much individual attention.

However, when classes became larger due to legislation that made school attendance cumpulsory, the problem of unready children became more serious. The criterion for school entrance became a specific chronological age and the cut-off date was set by state law. For California residents, minimum age of admission to kindergarten is four years and nine months on or before September 1 of the current school year (California Education Code 48000).

A law of which parents should be aware requires children to be in school at a certain age (generally six or seven). This means that a child does not have to be in school by age five although public schools must offer schooling. The California Education Code, for example, states that "each person between the ages of six and sixteen years . . . is subject to compulsory full-time education" (Section 482000). Many educators, therefore, recommend that parents who are aware that their child is not developmentally ready would do well to delay their child's entrance into school. Ames (1978) points out that about 50 percent of the children in school are one or two grades ahead of their overall developmental age mostly due to entering school when still developmentally too young. A replication of the school readiness research of Ilg, Ames, Gillespie and Haines (1979) again reveals that 50 percent of the children are younger in developmental age than in chronological age and thus are overplaced in school.

Clarizio et al. (1981) reports similar findings in kindergarten and express the concern that the percentage here may be even higher. They quote Zikes as saying,

> Only about 25 percent of children in kindergarten have reached a neurological maturity to cope with the symbolization necessary for reading. The eye may be ready to receive the visual image,

> but for more than 75 percent of the children, the neurological system has not reached the maturity needed to make connections between what they see and what they understand. There is nothing that can be done to speed up this readiness - only time can do this (p.45).

These latest findings, however, have not put an end to the historical controversy over the issue of entrance into kindergarten based on chronological age versus developmental readiness.

Historically, the body of educational literature has assumed that chronological age is the major independent variable for school success (Partington, 1937; Hamalainen, 1952; Carter, 1956; Evans, 1974; Davis, Trimble and Vincent, 1980). And, between 1934 and 1980, few variables other than chronological age were ever considered as affecting success in school.

In addition, today, as in the past, some educators and parents believe that some children are ready for an academic school before the magic age designated for school entrance. They speak of bright, young children who need the intellectual stimulation of a school setting and are concerned that precocious, energetic, intelligent children, who have already spent several years in educational child care centers and nursery schools, might be wasting their time away when there is still so much to learn. Some of these parents are devoted followers of Glenn Doman, a charismatic and controversial Philadelphia physiotherapist, who believes that, "Our individual genetic potential is that of Leonardo, Shakespeare, Mozart, Michelangelo, Edison and Einstein" (Langway, 1983, p.63) and are determined to make their children succeed. In an effort to seek out and meet the needs of those youngsters who are advanced intellectually some states have enacted statutes to permit early entrance to kindergarten (Spillman & Lutz, 1980).

The Spillman and Lutz Study (1980)

Acknowledging the ambiguous results of research data in the area of early admissions, Spillman and Lutz (1980) developed the following criteria which they considered vital for admission to kindergarten: physical development, social-emotional development, basic conceptualization, and language development. They then tested the validity of these criteria.

Fifty four students within the school district who had entered kindergarten under the above admission policy were studied and compared with 59 students who entered kindergarten at the chronological entrance age. The first group of 54 students were admitted to kindergarten if they met the following conditions:

(1) their chronological age upon entrance to school was 4.8 years. Therefore, they were each 5.3 years of age during this study;

(2) they had scored minimally 4.9 years on the fine motor development, gross motor development, communication, and basic concepts subtests of the DIAL (Developmental Indicator for the Assessment of Learning);

(3) through observations during DIAL assessments, the children had been determined to exhibit the following social-interaction skills: willingness to separate from parents, willingness to try tasks, cooperative behavior, willingness to answer questions, absence of crying/whining, and absence of distractibility.

The 59 children who were studied as regular entrants matched the number of early entrants from each school. Twenty-two schools from the distrcit were represented. Additional limitations were that the same number of boys and girls would participate in each group and that kindergarten retainees would be excluded. The youngest regular entrants were 4.9 years upon school entry and the total sample of regular entrants ranged from 5.4 to 6.4 years during the month of data collection for this study. All students of the two groups were tested by SCDI (Santa Clara Developmental Inventory) and DAP (Draw-A-Person) which were administered singularly to each child by the teacher.

As reported by Spillman and Lutz, the results were as follows: The differences in the number of body parts drawn by children in the two age groups were not significant, and there were no significant sex differences. There were no significant differences between early entrants to kindergarten and regular entrants to kindergarten on any of the component areas of SCDI, which are:

1. Motor Coordination
2. Visual Motor Performance
3. Visual Perception
4. Visual Memory
5. Auditory Perception
6. Auditory Memory
7. Language Development
8. Conceptual Development

There were, however, significant differences between males and females, the female scores being significantly higher than the male's. The only area on the SCDI in which there were no significant sex differences was visual memory.

The conclusion reached by the researchers was that "this study does not climax the debate . . .but the data clearly suggests that children who are screened and are determined to be at least 4.9 years developmentally . . . will be able to participate in kindergarten functions and activities at a level commensurate with kindergarten expectations" (p.9). Spillman and Lutz concede that the major weakness of this study was the lack of a good, long-term measure of social adaptability in the sense that the children in the study should be followed for several years to ascertain their academic and social achievements. "It is only through a long-term study of early entrants with their regular entrant counterparts, they conclude, that educators will be able to confidently make the best decisions about early entrance to kindergarten and its impact on subsequent academic and social achievements" (p.10).

It is interesting to note that the criteria considered vital for admission to kindergarten by Spillman and Lutz are very similar to Hedges' (1977) social development, emotional maturity skills:

- the ability to adapt or adjust to standards of group behavior;
- the ability to be away from home for a long period of the day;
- the ability to relate to other children;
- the ability to be capable of meeting work standards set by the teacher without becoming upset and evidencing undue anxiety;
- the ability to be a happily coping child in the new school environment.

The Ames and Chase Experiment (1981)

Ames and Chase experimented with two identical twins for a period of time to determine if training given early and before the organism was ready would be as effective as training at a later age when the organism was ready. The first experiment measured the effectiveness of early training in stair climbing.

> Every morning for six days a week, over a six week period, beginning when she was forty-six weeks old, Twin T (trained twin) was given definite stimulation and guidance in climbing a four-tread staircase. (At this time, neither twin had ever climbed stairs.) An attempt was made to entice her to climb the stairs as many times as possible. Each training period lasted for ten minutes.
>
> During the entire period while Twin T was given daily training in stair climbing, Twin C (control twin) was kept in an environment where no stairs were available. When the twins were fifty-three weeks old, and after Twin T had had daily training in stair climbing for six weeks, twin C was introduced to the stairs.
>
> On the first day, when she was placed at the foot of the four-step staircase, she climbed equally well, equally fast (13.8 seconds for T, 13.9 seconds for C) and with the same hand/knee pattern as her sister, though she had not been trained or even exposed to stairs at all (p. 72-74).

The second experiment was made to determine the twins' language behavior, when both girls were 19 months of age.

> This experiment was conducted with rigid experimental control. The experimenter and nurse-assistant lived in isolation with the twins, who were temporarily separated from each other. Twin T was given intensive vocabulary training for a period of five weeks, beginning at her eighty-fourth week and continuing through her eighty-ninth week.
>
> During this time, Twin C was isolated from Twin T and from all other persons, except the nurse and the experimenter. These two refrained from talking in C's presence, but communicated with her by gestures, the experimenter using smiling, humming, wordless signing and dramatic game play.
>
> At the close of Twin T's five-week training, Twin C, then eighty-nine weeks old, was trained for a period of four weeks. Her training was as nearly identical with that given to Twin T (earlier) as was possible. C was consistently ahead of T when a comparison was made on the basis of days training. In other words, C learned more rapidly than T who had been five weeks younger when she was trained (p. 74).

The conclusion reported by Ames and Chase (1981) is,

> It was clearly demonstrated that learning, even in a highly socialized function such as speech, does not transcend even slight differences in maturity. The environment, important as it is, appears to be strictly limited in what it can teach a child to do. Added age appears to do more in helping any child to learn and express a given behavior than does any quite intensive training at a too-early age (p. 74).

This conclusion, based on the works of Piaget, seems to be supported by other educators. According to Clarizio et al. (1981), "The majority of the evidence to date indicates that specific training does not speed up the stages of intellectual development identified by Piaget very much. The amount of improvement brought about through intervention is probably limited since the stages of development cannot be compressed into too short a time" (p. 46). The work of Piaget suggests that sufficient maturation should have been achieved around the five-seven age range to justify the traditional practice of beginning formal intellectual training at about age six. However, there are indications that a good number of children are not physiologically ready to begin formal intellectual training as yet. School today is largely based upon reading and writing, which are predominantly visual processes. Commenting on the statistical data that, although less than three percent of the population are born with eye defects, forty percent of school children have trouble with tasks requiring focusing, tracking, and hand-eye coordination, Geral N. Getman, quoted by Turley (1982), states: "One reason for the prevalence of vision problems among the young is that the nerve fibers leading from eye to brain are still maturing when a child begins school. In fact, most youngsters may not be physiologically ready for reading and writing until they are seven or eight years old" (p. 91). Turley then concludes by saying:

> Supporters of the concept of teaching children to read as early as two or three years of age fail to deal with the fact that young children's eyes tend to be normally far sighted. Throughout the past twenty-five years, at least, specialists in both vision and learning have warned that tissues of young children's eyes are soft and pliable and concentrated doses of close-up work such as reading and writing before the eye has sufficiently matured will cause muscle accomodation and strain that can result in myopia (Turley, 1982, p.91).

Some educators warn that physiological immaturity may lead the child who enters school to more serious handicaps. In Predicting Reading Failure, DeHirsch, Jansky, Langford (1966) state that, although children mature physiologically and psychologically along foreseeable lines, those children who lag behind their chronological age in overall maturation can be predicted to fail academically, if they are placed at the grade level their age would suggest. Since there seems to be a clear correlation between overall maturity and success in learning to read, Hedges (1977) concluded that many disabled readers are so, simply because they are not developmentally ready to cope with the reading process. In a study of children labeled learning disabled, Maddux (1980) found a disproportionate number of early-entering students, thus confirming the conclusion of Hedges.

Believing that there is no great rush to have children get started in school, the Scandinavian countries as a rule do not begin reading instruction until children are seven years of age. Not only do Scandinavian boys and girls read as well as our children, but there are far fewer children there than in this country who experience reading problems and later need remedial help (Ames and Chase, 1981). Quoting Baer, Hall and Tyler, Clarizio et al. (1981, p. 46) state that,

> Instruction is more effective when given to older children as compared to younger children. To put it another way, students learn more quickly when instruction is postponed until they are more ready. Early learning offers no real advantages, since those who started later soon catch up . . . It may well be that early learning offers an earlier yield, but no larger yield in the long run.

Besides, since all formal school work involves rules, it makes little sense to begin formal instruction in school subjects until the child is capable of internalizing rules and of performing according to them. Formal learning, therefore, is best delayed until about the age of six or seven when most children can learn and understand rules. For it is the facility of rule learning, says Clarizio et al. (1981) quoting Elkind, and not rote learning that is crucial in formal instruction. Higher scores on arithmetic tests can be achieved by rote knowledge, but scores so attained reflect little genuine capacity to understand relations and concepts.

> A child can recite his numbers to ten, or even twenty, still he's often not able to perform the simplest functions of artithmetic. A Sesame Street graduate who came to us recently with the proud boast (his mother's) that he could count to fifty, was still not able to write his numbers beyond a shaky three. He could not answer the question: "If John had four pennies, and his mother gave him two more, how many pennies would he have altogether?" because, as he explained, "I don't know John" (Ames & Chase, 1981, p. 6-7).

Researchers, moreover, are discovering that early entrance in school may be the cause of many other negative results. For example, Sue Moskowitz, cited in Ames and Chase (1981), reports a study in which an investigator, over a four year period, compared children who were required to begin formal instruction before six with those who started after six. The children who started earlier, not only made slower progress, but did not develop as great a liking for reading as those that started later. In a study conducted by Husen in 1967 among selected thirteen-year-old students from twelve different countries, the results revealed that the earlier the groups entered school, the more negative was their attitude toward school (Clarizio et al., 1981). Ogletree (1972), believing in a cause-effect relationship between physical and mental development, points out that:

(1) children forced into academic learning beyond present capacity or motivational level easily become turned off to school;

(2) early learning is not only inefficient but there are indications that it results in lower plateau of performance;

(3) premature learning often creates a mental blockage, lowering the ceiling for the subsequent development of a particular skill.

Hemphill (1953) notes some physical consequences of developmentally or chronologically younger children being enrolled in school. These children: wore more glasses than average; were more bothered by nervous disorders; lacked adequate neurophysical coordination; were more inclined to withdraw from socialization. The negative effects and consequences pointed out by Ogletree and by Hemphill specify what kind of "continued disadvantage" younger children have through elementary school as noted by King (1955). She adds to these disadvantages the child's poor personal and social adjustment in school. Clarizio et al. (1981) judge as educationally unsound the practice of premature formal learning because the student can lose interest and develop negative attitudes toward learning. "In short, parents must guard against producing what Elkind refers to as 'intellectually burned' students" (p.47).

Parents who have made a decision to introduce their child to formal education when their child is still too young are faced more often than not with hours of frustration and tension between teacher and learner even when the task could have been mastered quicker and with pleasure at a later date. Working mothers, particularly, can ill afford to change the limited time they spend with their children into unpleasant sessions with resentment building on both sides (Zinsser, 1982).

The Campbell Study (1980)

In a study on the effect of school entrance age upon academic achievement and social adjustment in the primary grades, Campbell (1980) compared children who entered school for the first time with birthdays falling between August 1 and December 31, and children who entered school also for the first time, but with birthdays falling between January 1 and July 31 of the same year. The subjects in this study were 247 children in grades kindergarten through third garde at Goshen Elementary School, Goshen, Kentucky. The second and third grade children were scored on the Comprehensive Test of Basic Skills; the first grade children were scored on the Metropolitan Readiness Test; and the kindergarteners were scored on the Test for Ready Steps.

Each child's total battery percentile scores were recorded to find the mean, median, and range, with the exception of the kindergarten. The test given to them was not a standardized test and there were no percentile scores available. The total raw scores were recorded to find the mean, median and range. A teacher survey was used to try to determine whether or not young children had social adjustment problems. The teachers could respond with: almost always, often, sometimes, and almost never to the statements.

It was found that the majority of the older children had higher achievement test percentile (or raw) scores than the majority of younger children. In the second and third grade, the older children's total mean score was 68%, and the younger children had a mean score of 62%. The older boys had the highest mean (70%); the older girls had the next highest (66%); the younger boys had the next highest (65%) and the youngest girls had the lowest (60%). The same results held true with the subjects studied in the first grade. Both the older boys and the older girls had higher percentile scores than the younger children. The older girls, however, had the same mean scores as the older boys (67%). Again, the younger girls had the lowest percentile mean scores. Only in the kindergarten sample did the young girls score higher than the younger boys. However, the older boys and girls scored higher than their younger counterparts. Contrary to the researchers' expectations, the majority of the boys both older and younger, scored higher than their female counterparts. The results from the teacher survey were not conclusive, due to the human element of judgment. However, it does appear that they felt that the older child had an easier time in school.

The implications from the results of the study were that the majority of older children tend to meet with success in school more readily than do younger children. It would seem logical that the child who has the advantages of more experiences, simply because he is older, will be able to cope with the tasks required for learning. Parents and educators should make every effort to determine if a child is developmentally ready to handle those tasks so that he has a better chance of succeeding in school with as little frustration as possible.

As Campbell readily admits, besides the element of subjective judgment pointed out above about the teachers' evaluation of social adjustment of older children, the sample studied was too small and probably did not truly represent the whole population of the School District. The results, however, do confirm the findings of other studies that older children seem to adjust better than younger ones to the school environment both academically and socially.

V. Testing Developmental Readiness

A number of tests have been devised to ascertain a child's developmental readiness.

According to Knoblock and Pasamanick (1974), developmental assessment is essentially an appraisal of the maturity and integrity of the child's central nervous system, with the aid of behavioral information. This assessment calls into play a child's vision, hearing, touch, proprioception, motor coordination, and intellectual (speech and language) controls. There are no right or wrong behavior responses, no success or failure. Developmental assessment concerns itself only with the developmental status of the individual: it is both a maturity assessment and a neuromotor and sensory exam.

The most widely used developmental readiness tests are:

(1) Gesell School Readiness Screening Test
(2) Inventory of Developmental Tasks - Santa Clara
(3) School Readiness Survey
(4) Denver Developmental
(5) Developmental Indicators for the Assessment of Learning (DIAL)
(6) ABC Inventory

Although each of the above developmental readiness tests is effectively used by one school or another, the Gesell School Readiness Screening Test is by far the developmental screening test most widely used.

The Gesell Institute, founded in 1950 by the staff of the Yale Clinic of Child Development, has done extensive research on child behavior in the school. Its first significant school-placement study pointed out that beliefs about the problems caused by overplacing pupils in school were correct. A developmental examination was devised and included in a battery of tests given individually to kindergarten, first and second grade pupils. All of the groups were followed longitudinally for three years, and scored +, -, or ± with regard to readiness for the grade to which the school had assigned them on the basis of their chronological age. Correlation between their original kindergarten predictions and the actual school performance in grade 6 was .74 (Turley, 1982).

Since the Gesell School Readiness Screening Test will receive special attention in this paper, it is appropriate that a description of its components be given at this time to facilitate the understanding and appreciation of its testing procedure. The test consists of eight components or subtests: Interview; Paper and Pencil Tests; Copy Forms; Incomplete Man; Right and Left; Monroe Visual Tests; Naming Animals; Home and School Preferences. Innumberable other factors, such as the child's behavior during the test, posture, pencil grasp, manner of following directions, speech and language are additional clues to the child's developmental age. Scoring on the test components is important because the responses to each of them are matched against age norms for that test. Scores on the various components may vary, but the scores together with the other behavioral signs exhibited by the child during the examination tend to cluster around a behavioral age. Each separate part of the test tells its own story, but it is the synthetic capacity of the examiner to put the child in a total developmental age that is important and essential. It is only when the examiner comes to realize the way in which one part of the examination supports and confirms another part that the final effective appraisal can be made.

The Gesell developmental test soon became the basis of crucial educational decisions, but it took time before empirical evidence could be collected to prove its validity.

Andrews (1971) considered the Gesell School Readiness Test to be a good predictor of school readiness and developmental age to be a reliable measure in predicting success in kindergarten.

In 1972, Kaufman contributed empirical support to the claims of Ilg and Ames by demonstrating that the Gesell tests, as well as the battery of Piaget tasks, given in kindergarten were an excellent predictor of achievement at the end of grade one (Turley, 1982).

The Olson Study (1981)

In 1981 Olson undertook a study "to determine whether the Gesell kindergarten screening instrument employed by the public school was a more effective method of placing students in the young or old kindergarten development program than the state's system which was based on a child's birthdate" (p.1). The subjects of the study consisted of 301 children in a 1980-81 kindergarten program.

The conclusion of the study was that,

> It does appear possible to develop a strong theorectical argument for using the Gesell screening program. The State mandated birthdate guidelines are the result of an arbitrary decision,

> dividing the years into equal parts. No consideration is given to stages of development under these guidelines, whereas, the Gesell screening has five variables that it seeks to measure as a means of predicting how a child should be placed in kindergarten. The data confirmed that age did not affect how a child did on a particular subtest, but rather the success of a child on any subtest was dependent upon how that child was progressing in his/her development in the particular skill being measured by a given subtest. Consequently an educator is better able to assess where a child is in his development and growth, and thus recommend a kindergarten placement that will be most beneficial to each particular child's needs (Olson, 1981, p. 5-6).

The Chip Wood Study (1982)

Probably not aware of the 1981 Olson study, Chip Wood (1982) undertook the task of validating the Gesell test for school readiness. He admitted that , after four years of training and practice with the clinical Gesell measures, it became important to him to prove the predictive validity of the Gesell screening test. According to him, except for Kaufman (1972) and the work of the Gesell Institute staff itself (Ilg et. al., 1979), no research had been undertaken to validate the Gesell scales for school readiness. Given the immense respect held for the Gesell infant scales and the long history of practical success with developmental diagnosis, such research appeared long overdue. Could it be shown that the Gesell scales accurately identify those children who, while chronologically five years old, will, because of developmental youngness alone, experience "failure" in kindergarten through "special needs" labeling? In other words, is the Gesell School Readiness Screening Test a valid predictor of school readiness? The scope of the research had as its objectives the following questions:

1. Is the Gesell Developmental Screening instrument a valid procedure for discriminating between children who will have successful experiences in K and those who will encounter problems? Put another way, how effective is the Gesell as

a means of making placement recommendations for a child to enter K or not? Are the children recommended to enter K, using this instrument, more likely to enjoy a high rate of success in K?

2. Is the Gesell instrument any better than chronological age in identifying potentially successful and unsuccessful K students?

To test these questions, 99 children were tested in the demonstration district where a developmental screening and placement policy was in effect. Eighty-four children were tested in a comparison district where no developmental screening or placement policy was being utilized. Both communities were similarly semi-rural, lower-middle class, and predominantly white in their compositions.

The test populations represented all kindergarten eligible children in both districts for 1980-81. Children in the comparison district were tested following kindergarten entrance, and because of the district's policy, those having school problems were designated "special needs" children. While all testers were certified Gesell Examiners, all were "blind" to these "special needs" designations of the children in the comparison district. No advance knowledge of these children was presented.

To answer the first question, the researchers conducted a statistical test of relationship on the data from the comparison district to assess how well developmental age predicted which children would have failure experiences in K (labeled "special needs"). The results of this analysis indicate that developmental age is a very good predictor of success or failure in K (F=18.21; df=1.83; p=.0001). The average developmental age of children who were labeled "special needs" was 56.0 months (4.7 years) while the average developmental age of children who did not experience these difficulties (successful children) was 60.4 months (5.0 years).

> In examining the second evaluation question of chronological age, or the "birthdate effect" as DiPasquali calls it, the researchers found these interesting results. In contrast to DiPasquali's findings, the present study indicates that chronological age, by itself, is unrelated to success or failure in kindergarten (F=1.28; df=1.82; p=.26n.s.). When considered together, developmental age and chronological age do not predict any better than developmental age alone (p. 7).

It is interesting to note how Chip Wood clarifies the concept that older children tend to do better in school than younger ones. "An examination of the figure clearly shows that children who experienced problems in K are just about as likely to be old at entrance as they are to be young" (p. 10). In other words, according to the findings of the study, chronological oldness or youngness does not make any difference. It is developmental oldness (maturity) that is the key to success in school.

The research substantiates that the Gesell developmental screening procedure is effective for predicting success or failure in K. Furthermore, the researchers demonstrated that the chronological age of children entering K, within the range of 48 to 71 months, is unrelated to eventual success or failure in K. They conclude that correct developmental placement, in fact, would result in between one third to a half of all chronologically eligible K students being recommended as developmentally inappropriate for K.

The clear evidence of the predictive validity of the Gesell School Readiness Screening Test contained in the evaluation report contributes important documentation to the readiness field. The researchers recommend that exact 'critical ages' for appropriate placement in K or Pre-K should be calculated locally because average developmental ages of children and the developmental level of K curricula vary across school districts. Children who are mislabeld "special needs" simply because of developmental youngness risk a school life of unnecessary failure. Professionals charged with assessment of children at school entrance need a deeper appreciation for developmental differences and improved training in clinical observation and assessment to avoid the labeling of so many young children.

By demonstrating the predictive validity of the instrument, the present study substantiates the value of the Gesell measures in developmental assessment and dispells some old and now unsubstantiated criticisms surrounding them. It is of interest to note that in the demonstration school district, where developmental screening and placement has been in effect for some three years, "special needs" at the kindergarten and primary level are virtually nonexistent, except for clearly diagnosed physical handicaps or "true" learning disabilities. In this district, parent education, teacher training in child development, and a developmental prekindergarten program have combined to enhance the school readiness of all entering students. Careful attention to, and understanding of, the developmental differences in children of the same chronological age, seems to be one of the best ways to guarantee a successful school career for each individual child.

The Turley Study (1982)

During the same year of the Chip Wood research study, Turley (1982) was conducting her own research in the Lafayette School

District, Contra Costa County, California. A battery of short tests, including Gesell School Readiness Screening test, was administered by a school psychologist and was the most important part of the assessment. The purpose of the study was to determine whether children profited from the additional year in kindergarten by studying their achievement in reading and mathematics in grade one. In addition, the relationship between later grade repetitions and developmental youngness in kindergarten was investigated.

A three-year sample of pupils who had been identified as developmentally unready for grade one was divided into two groups, those who did spend an additional year in kindergarten and those who went on to grade one after only one year despite the recommendation for two. An additional group was randomly selected from the remaining pupils whose readiness for grade one had not been questioned.

In the main thrust of the quasi-experimental design, the criteria were the grade one reading and mathematics scores. The main independent variables were group (one or two years in kindergarten) and gender; scores on the items in the kindergarten battery, school entry age and test age were included as control variables.

A t-test initially determined that the two groups of developmentally young kindergarteners were similar in respect to the pretest items. The retained group was, of course, older at the time of the grade one testing. A regression technique was used to select the five control variables that contributed most significantly to the grade one reading scores and these were used as covariates along with the main effects in an analysis of covariance. An identical procedure was used for the mathematics scores. This technique was used to determine if there were differences in the grade one scores of the two groups that were significant after scores were adjusted for initial differences in the groups. An analysis of variance was then used to compare the scores of the two groups of pupils identified as developmentally young in kindergarten with the randomized group of others. Finally, a chi square was computed to determine if a relationship existed between kindergarten repetition refusals and later grade repetitions.

Retention in kindergarten was recommended for about 15% of the present population of the Lafayette School District, located in a high socio-economic suburban area. Recommendation for the grade repetition was made after a developmental assessment was completed according to a district plan including individual testing.

In the total group of developmentally young kindergarteners, the retained group was found to score a significant 8.7 months higher in reading in grade one after scores were adjusted for contributions of the covariates and 7.7 months higher in mathematics. While there were more boys than girls in the group, there were no significant differences between the scores of boys and girls. Scores in both reading and mathematics for the retained group were statistically equivalent to the scores of the other pupils whose readiness had not been questioned in kindergarten. Scores for the group for whom recommendation for retention was refused were significantly lower than for the group of other pupils. Pupils who repeated grade one, two or three tended to be those for whom kindergarten repetition had been recommended but refused. By the end of the grade three, fifty-four percent of those pupils had repeated a grade.

> Kaufman, concludes Turley, demonstrated that Gesell developmental tests were indeed excellent predictors of achievement at the end of grade one, as had long been claimed

> by Ilg and Ames. Still unanswered, however, was whether or not children should have an additional year of kindergarten on the basis of these tests. This study determined that when pupils were predicted to be unready for grade one on the basis of developmental testing (Gesell and others) and were given an additional year of pre-first grade work, they did achieve in reading and mathematics at the end of grade one as well as their grade one peers. Those pupils who were predicted to be unready proved to score significantly lower than their grade one peers both retained and not retained in kindergarten. In addition, they tended to repeat a later grade. This information suggests that pupils determined to be developmentally unready for grade one should be offered an additional year in kindergarten if achievement in reading and mathemetics is a primary objective (p. 83).

In conclusion, the available developmental readiness screening tests, particularly the Gesell School Readiness Screening Tests, do offer school teachers and administrators a useful and valid means to ascertain developmental maturity for school work and fairly predict academic failure or success. However, as Ilg et al., (1979) point out, there is nothing automatic (in these evaluations) . . . That is why they are so unsatisfactory to those examiners who wish to come out with a single numerical score. Behavior elicited by the developmental examination forms a living whole.

The assessment of a child's readiness for school need not be determined until s/he has actually reached the mandatory chronological school age. And some parents appear to be good judges of their child's developmental readiness going on "gut level" feelings. They only need the support and reassurance of a well-trained developmental readiness examiner to help them make the decision to delay entrance into kindergarten or to retain their child in kindergarten for a second year. Other parents seem to be willing to have their children spend an additional year in kindergarten if they are chronologically younger than the norm and often delay school entry for a year when birthdates are in September to December. However, a trained teacher's observations and judgment of the child is an invaluable way to determine readiness. What the teacher and parents should be looking for are the four areas of development which are identified as related to school success: physical development, social-emotional development, basic conceptualization, and language development (Spillman & Lutz, 1980). It is also important in observing social interaction skills that the child exhibits the following characteristics: willingness to separate from parents; willingness to try tasks; cooperative behavior; willingness to answer questions; absence of crying/whining; and absence of distractibility (Spillman & Lutz, 1980).

In the actual administration of the test, the examiner should be aware that the child's developmental readiness is not only determined by the successful performance of the tasks required, but also by the way they are performed. As Ilg et al. (1979) point out, "We have gradually come to realize that the significance of such a test as Copy Forms is not simply in the success of copying. It is also in the way the child copies, the size form he makes, the place on the paper where he choses to draw his forms. All these and many other qualifying categories tell us more fully about the child than does his mere success or failure in copying the forms in question" (p. 4).

A model for developmental readiness observation and testing is presented by Turley (1982) as it is implemented in the Lafayette School District:

> An assessment practice begins with the classroom teacher who observes pupil behavior according to a prescribed checklist. Inservice training has been given to kindergarten teachers by the Director of Special Services. A parent conference is arranged, and parents are invited to request the individual assessment by the school psychologist if the teacher suspects a lack of developmental readiness for grade one. Obtaining

> parental permission for assessment has not usually been a problem. The testing psychologist briefly observes the child in the classroom and conferences with the teacher. After the assessment, a conference is arranged for the teacher, parents, and psychologist to review the pupil's class and test behaviors. Recommendations are made about the next year's school program and/or the pupils's special needs. The decision whether or not to retain a child in kindergarten is made by the parents. District policy does not permit more than one grade repetition during the time a child is in grades kindergarten through eighth. In addition, a child whose entrance into kindergarten is delayed for a year by parental choice is never asked to repeat a grade (p. 10-11).

VI. What to do when Developmental Readiness is Questioned

As pointed out by Lindelow (1982), alternatives to retention and promotion have been suggested by many researchers. He quotes, for example, the "transitional maturity classes" proposed by Reinherz and Griffin (1970) for children between kindergarten and first grade who are not yet ready for academic learning. Dobbs and Neville (1967) had suggested systems of ungraded classes, ability grouping, remedial instruction, and smaller classes with more individual instruction.

However, developmental readiness educators believe that, when school readiness is questioned, the recommended thing to do is to delay entrance into school or agree to a retention of the child. Hedges (1977) concludes that there is overwhelming evidence for delaying school entrance of children who are developmentally unready. According to Campbell (1980) retention in kindergarten of an unready child is far preferable to retention in later years - even first grade. This is also supported by Donofrio (1977) who recommends repetition of kindergarten as the initial and most important step in preventing failure in early-entering children. This same recommendation is also made by Chip Wood (1982) and Turley (1982). Scott and Ames (1969), however, after offering arguments supporting the positive effects of repeating a grade, wisely and prudently point out that, "Retention cannot be expected to cure all school problems" (p. 434).

The most important advice the developmental educators can offer to parents of possibly immature children is to hold off formal education. After lamenting the increased pressure of society on parents to begin the education of their children earlier and earlier, R. Wood (1981) says:

> Instead of giving their children time to be children, parents begin and reinforce fierce competition at kindergarten. Somehow all five year olds are supposed to be magically ready for school though virtually no one can be found who expects all thirteen month olds to be ready to walk. A parent who is told his/her child is 'not ready' for school, hears 'failure', 'stupid', 'retarded' or worse, unless a careful and thoughtful job of education has preceded such a conclusion. The ever increasing demands of society have placed an unreal burden on parents, schools, and especially children. School districts who believe that developmental screening and placement will save children from failure and save the school district money (and it will do both), must also believe in the rights and integrity of parents and children . . . Each child has the right to the best possible start in public education (p. 1).

Sinatra (1983) underlines the extreme importance of allowing the child sufficient time for sensorimotor experience and myelination to take place before formal education is undertaken. He warns that, since the trend today in preschool, kindergarten and early primary education seems to be toward earlier and earlier reading and writing, much precious time is being alloted to formal education that may have been better spent in sensory exploration of those aspects of the physical environment and life experiences that form the basis of the ideas and conceptualizations they will be reading and writing about. In fact, he says quoting Eisner, children who have not been given sufficient time to learn how to see and mentally explore the forms of nature, art and science, will not be able to write, not because they can't spell, but because they have nothing to say!

Does this imply that parents should not even try to teach their children? Brinley (1983) answers the question by quoting Dr. Richard

Formica, a New Jersey psychologist and Director of the Bergen County Parenting Workshop: "Anything you undertake with a child must flow from the child. And I say this with the deepest conviction. A parent at his or her best is a mirror, a holding environment that facilitates a child's experience and excitement in living each moment" (p. 200).

Dr. Formica goes on to explain what enriching a child's brain is all about in the following words:

> Learning skills or facts earlier than other children is relatively unimportant. Most such skills are eventually learned by all children. I guarantee you that my two-year-old daughter, sitting in my lap as I read her a dozen of her favorite little stories, learns as much about words, ideas, people, and the world as if she could read the books without my assistance. She's also learning that learning is fun, exciting, and a time of warmth and closeness to daddy (Brinley, 1983, p. 200).

Ames and Chase (1981) express exactly the same concept when they state:

> If you are thus interested, as many are today, in improving your child's mind, you don't need elaborate equipment, don't need a scholar's understanding of so-called cognitive development, don't need to send your child to a school or center where teacher will self-consciously work to raise his IQ and teach him to read. The best and most important thing you can do for a child, as far as his intellectual development is concerned, is something that many parents have done quite naturally and with great pleasure ever since books were invented. _You read to them_ (p. 105).

Some children, of course, will spontaneously read early and should be permited to do so (Ames and Chase, 1981). However, the most important thing is that the child be exposed to the world of books.

VII. Results of Overplacement

In Predicting Reading Failure, DeHirsch, Jansky, and Langford (1966) state that children mature physiologically and psychologically along foreseeable lines and that those children who lag behind in overall maturation can be predicted to fail academically. This statement is supported by the findings of Hedges (1977). Since there seems to be a clear correlation between overall maturity and success in learning to read, he concluded that many disabled readers are not developmentally ready to cope with the reading process. In a study of children labeled learning disabled, Maddux (1980) found that there was a disproportionate number of early-entering students thus confirming the findings of Hedges (1977).

Ogletree (1972) points out:

1. Children who are forced into academic learning beyond present capacity or motivation level easily become turned off to school;
2. Early learning is not only inefficient but there are indications that it results in a lower plateau of performance;
3. Premature learning often creates a mental blockage, lowering the ceiling for the subsequent development of a particular skill.

In 1953, Hemphill had noted that younger children enrolled in school: 1. were more likely to wear glasses; 2. were more bothered by nervous disorders; 3. lacked adequate neurological coordination; 4. were more inclined to withdraw from socialization. These findings have been supported by the more recent studies of Turley (1982) and Sinatra (1983). These conditions seems to specify what kind of "continued disadvantage" younger children have through elementary school as observed by King (1955). She attributed this disadvantage to a poor personal and social adjustment in school.

Halliwell and Stein (1964), by contrast, reported that children who entered school at an older chronological age, were significantly higher in academic achievement than those who entered earlier as measured by results of academic scores.

Weinstein (1969) is of the opinion that, since these younger children are less mature physically, socially and emotionally, they are: 1. less ready to learn academic skills; 2. less able to sit quietly; 3. less able to concentrate; 4. less able to follow directions; 5. less able to share the teacher's attention; 6. less able to work neatly with pencil and crayon; 7. more likely to be referred for emotional disturbances; 8. more likely to be rejected by classmates.

In 1962, Weiss had already noted that if the child was not making sufficient progress, he was most likely to develop unfavorable attitudes toward school. This observation has now been borne out by more recent research (Ames & Chase, 1981; Clarizio et al., 1981).

In 1952 Hamalanier had related that school adjustment of children underage (less than 4 years 9 months) at kindergarten entrance resulted in significantly more difficulties in the areas of home life, play experiences, and experiences at school. This was confirmed by Ames, Gillespie, Streff (1972) who compiled a list of negative effects on the overall performance of the child due to overplacement:

(1) dislike for school;
(2) complaints of too hard;
(3) difficulty in finishing work;
(4) fatigue;
(5) difference in behavior in summer;
(6) trouble getting ready for school;

(7) physical complaints;
(8) quarrelsome behavior;
(9) lower marks than capable of making;
(10) trouble socially;
(11) preference for younger friends;
(12) discipline problems in school;
(13) day dreaming;
(14) seeming young for age.

Carll and Richards (1977) summarize the above list by enumerating the following negative effects:

(1) pressures;
(2) frustrations;
(3) physical reactions;
(4) social reactions;
(5) emotional reactions.

In a lecture for a Gesell Institute Workshop given at Fullerton, California, on July 31, 1981, Marguerite Green enumerated the following symptoms of overplacement by grade level:

Kindergarten = cries easily; exhaustion - tired before session is over; social problems - does not enjoy group activities; doesn't want to leave mother.

1st grade = nightmares; bedwetting; doesn't want to go to school; "I'm dumb"; frequently to the bathroom; frequently to sharpen pencil; can't find anything; easily disturbed (a fly goes by); tired; overly stimulated; irritable at home.

2nd grade = dawdles; sick to stomach; doesn't finish work; day dreams; needs to be first in line; below grade level in learning; parent/teacher says he can do better of he would try; trouble relating to peers.

3rd grade = hates school; can't finish work; few friends; poor self image; "I'm dumb"; student becomes rebellious; won't do homework; tired and miserable except on no school days; headaches; stomach aches;

4th grade = many of the above plus no friends; won't go out for organized sports (watch what child does at recess).

Results of Correct Placement

Correct placement of a child in the grade for which s/he is developmentally ready, is not concerned about giving the child a head start, but a correct start.

Developmental readiness is determined by sufficient social development and emotional maturity:

(1) the ability to adapt or adjust to standards of group behavior;

(2) the ability to be away from home for a long period of the day;

(3) the ability to relate to other children;

(4) the ability to be capable of meeting work standards set by the teacher without becoming upset and evidencing undue anxiety;

(5) the ability to be a happily coping child in the new school environment (Hedges, 1977).

Although the child is likely to exhibit an initial feeling of inadequacy when s/he enters school, Carll and Richards (1977) report that as the child progresses, this feeling is strongly counteracted by the child's inner feeling of worth and of self confidence which is developed through correct placement.

Brenner and Scott (1971) observed the different behavior of school children and reported that the older child is more likely to give evidence of emotional security, independence, social responsibility, task orientation, and motivation to learn. These are all qualities of positive adjustment to school and life in general.

Finally, it is of interest to note that, in a pilot school project where developmental screening and placement has been in effect for some years, "special needs" at the kindergarten and primary level are virtually nonexistent, except for diagnosed physical handicaps or true learning disabilities (Chip Wood, 1982; Turley, 1982).

VIII. How to set up a Developmental Readiness Program

This section is intended to give some pertinent information about starting a developmental screening and placement program in a public school.

Although One Piece of the Puzzle by Carll and Richards (1978) is the manual for starting a developmental screening program, and further material can be readily obtained from the Gesell Institute, New Haven, Connecticut, this paper will make use only of a brief article by Robert Wood (1981) with the title, "What Do You Mean He's Not Ready?" in which he deals with this particular matter.

Robert Wood makes clear from the beginning that a successful preschool screening program can be implemented if these basic premises are met:

1. School teachers and administrators who believe in developmental readiness as a prerequisite for a child's school success must also believe in the rights and integrity of the parents and children whom they serve: The right of the child to the best possible start in school and the primary right of parents to make educational decisions for their children.

2. Careful education of teachers and administrators of the program has to precede it's implementation. Careful education of parents and of the school community has to take place before proper planning can proceed any further. "It is worse to implement a developmental program without proper planning and a careful timetable, than to implement no program at all" (p. 1).
3. The adoption of a developmental screening and placement program means and requires a permanent readjustment of philosophy at all levels of the school district organization. This takes time and cannot be done overnight.
4. After the developmental screening and placement program has been adopted and implemented, it still requires the yearly vigilance on the part of readiness personnel, kindergarten teachers and interested parents to make sure the program is administered and run properly.

Robert Wood then describes the step by step planning and organization of the program:

1. Begin the training of teachers and planners for the developmental readiness program;
2. Solicit active participation of the developmental readiness staff in the Gesell Workshops for personal training and for guidance on how to implement the program.
3. Develop community education on the philosophy and merits of a developmental readiness program.
4. Make a proposal to the District School Board for the implementation of a developmental readiness pilot program with specific guidelines.

5. Organize district-wide workshop by the Gesell Institute.
6. Organize Gesell Workshop for School Committees in the District.
7. Provide training of Gesell examiners.
8. Adopt a developmental screening and placement policy by the District School Board.

As presented by Robert Wood a synopsis of an actual timetable looks like this:

November, 1977	Kindergarten teacher, Principal and Primary Teacher from one district school attend 1 day Gesell Institute Workshop.
January, 1978	Initial presentation to Pilot School Committee - - K teacher and Principal attend week long training workshop - Gesell Institute.
Spring, 1978	Community Education efforts begin - PTO Presentation by Gesell Institute - One day In-service workshop for District teachers - Pilot School Preschool and K population screened using the Gesell Instrument.
November, 1978	Proposal to District School Committee adopted - changes entrance date to September 1 (a month per year from Jan. 1) - proposes Gesell Screening District-wide for Spring, 1980; continues pilot school screening 1979; continues commitment to community education; asks for minimal $ outlay for training ($1,200).
February, 1979	Gesell Workshop for School Committees in the District.
Spring, 1979	Second year pilot school screening.
August, 1979	Summer training Institute sponsored in county by District, trains Gesell examiners.
November, 1979	District School Committee fully adopts Developmental Screening and Placement Policy. Makes more substantial financial commitment including staff coordination.

January, 1980	Parent workshops by Gesell Institute.
January - May, 1980	Preschool Screening Team established and trained.
May - June, 1980	District wide preschool screening carried out; Parent conferences held as required; placement recommended kindergarten or "not ready" as indicated. Possible options or Prekindergarten or another year at home offered . (p. 2-3).

Wood concludes his article by underlining again the need to respect parent authority and decisions in the placement process. He says,

> Parents must understand and accept your recommendation for it to be of benefit to their children. Children should never be placed against the refusal of parents. It is important for us as educators to remember our secondary place in the education of children and to plan our policies with that in mind. This is not to dismiss our roles as counselors to adults, and advocates for the lives of children. We must balance our action with local reality and the best possible alternative for each child. When we are honest and forthright and patient in our efforts to explain and help, a successful school readiness program is in the making (p. 3).

Conclusion of Review of Literature

The review of literature presented in this paper indicates that an important concept underlying education of children is that of developmental readiness. According to this concept, a child will not be successful in academic achievement until he has reached the requisite stage of cognitive, emotional and neurological development necessary for the acquisition of new concepts and skills. Thus, when intellectually normal children encounter difficulties in school, they are described as being immature or lagging in development, unless a learning or physical disability can be ascertained. The practice of having a child delay entrance or repeat kindergarten is usually justified on these grounds.

The implicit assumption is that the child needs more time to mature and that a year later the youngster will be more ready to undertake the learning tasks that lie ahead.

Although this view has been widely accepted in some education circles, it has not been unanimously accepted, by any means. It remains even today, unknown to some and ignored by others.

Putting aside the important and controversial issue of grade repetition, the question of whether or not developmental immaturity has a relationship with school failure is still a controversy today. Gresler (1980), for example, cites several studies that appear to show that developmental youngness is not of prime concern and points to socioeconomic status as accounting for more school difficulties than immaturity. For Gresler, carefully planned remedial instruction, individualized with care and forethought, is the primary need of these children.

As Oberklaid and Levine (1980) aptly point out, children with school problems are not restricted to those of socioecomonic disadvantaged status and they give ample evidence that these children may belong to the most heterogeneous groups, although the more affluent socioeconomic groups do have more means to diagnose the source of these difficulties and to provide for remedial help when needed. Nor does remedial instruction by itself or individualized care provide a solution, for instance, for children whose selective attention is so erratic and whose behavior is so unpredictable and disorganized that learning becomes a struggle for the child and instructing an exasperation for the teacher. These attention and behavioral handicaps may represent true learning disabilities and, therefore, the specific learning disorders should be identified and treated. However, if a careful analysis of the children's selective attention and erratic behavior reveals that these youngsters' only problem is their developmental youngness or immaturity to cope with the school environment, it would seem reasonable not to impose on them a style of life and work which they are not as yet ready to undertake. Since the advocates of developmental readiness are often associated with the proponents of retention for failing students, it bears repeating here what has already been stated in this paper - that repeating a grade is no panacea for every school problem. There is no reason to believe that delaying entrance into school or repeating a grade will make success possible for a child who has a very low intelligence quotient or for a child who is emotionally disturbed, neurologically damaged, or perceptually handicapped. Although going at a slower rate will reduce the pressure and make things easier for any school children who are having difficulty, it is only through remedial help and special class programs that these youngsters can be effectively helped. All that delaying entrance into school or repeating a grade can reasonably be expected to do is to provide extra time needed because of immaturity and therefore, of unreadiness for the work of the grade in question (Scott and Ames, 1969). The thing that developmental educators are concerned about is to give the child a correct start, not a head start.

PRESENTATION TO PARENTS AND TEACHERS

Introduction

Welcome Remarks.

Hand out quiz (allow time for true and false responses);

Give correct answers. (Cfr. Appendix I.)

Besides innate intelligence, a child's learning is based on three factors:

1. Innate personality - There are basically two major types of personalities, the introvert and the extrovert. The introverts are our scientists, researchers, and writers. The extroverts often are our public relations people, politicians, and salesmen. It is beneficial for both parents and teachers to determine the child's basic personality in order to respect the child for who s/he is, and to help the child reach his/her full potential. It is important to note that our society needs both of these personality types.

2. Environmental factors - Besides accepting the child for the way s/he is, parents should provide the proper atmosphere and means for the child's physical, emotional, social, and intellectual growth. This will require proper food; clothing; shelter; a secure, loving environment; listening, understanding, and speaking with your child as s/he discovers the world that surrounds him or her.

3. Developmental Readiness - The purpose of this presentation is to share with you the importance of developmental readiness as a factor in your child's learning. (A handout on these three factors of a child's learning will be available to you at the end of this presentation. Cfr. Appendix II.)

Outline of Presentation

This presentation will cover the following points:

1. What is developmental readiness?
2. How do we determine developmental readiness?
3. What to do if developmental readiness is questioned.
4. Results of overplacement.
5. Questions and sharing.

Please save questions for this time. To help you remember your questions or comments just jot them down on the quiz.

I. WHAT IS DEVELOPMENTAL READINESS?

A. Developmental Readiness

Developmental Readiness is the age at which the child is developing as a total person: physically, socially, emotionally, and intellectually. Developmentally a child may or may not be at the stage of development that his or her chronological age might indicate.

Children develop at their own rate. A child may be chronologically at age seven but behave as a five year old. The findings of Piaget and Gesell, who spent a lifetime studying the developmental processes of children, would indicate that a child is ready for formal school learning between ages 5 and 7 if developmental maturity has kept pace with chronological age. This is also confirmed by recent findings on the process of myelination. Myelination is the progressive maturation of the nerve fibers produced by a whitish substance called myelin. Myelin is absent at birth but gradually begins to coat the nerve fibers, allowing controlled muscular action. Myelination proceeds from the head downward and from the center of the body outward. The immature child may not have undergone the myelination process (Dobson, 1981). This is why some 5 year old children may not be ready yet to start formal learning. Recent research indicates that only about 25 percent of children in kindergarten have reached a neurological maturity to cope with the symbolization necessary for reading. The eye may be ready to receive the visual image, but for more than 75 percent of the children the neurological system has not reached the maturity needed to make connections between what they see and what they understand. There is nothing that can be done to speed up this readiness - only time can do this (Clarizio et. al., 1981).

B. Developmental versus Chronological Age

Children should enter school on the basis of developmental age rather than chronological age. A law that most parents are unaware of requires children to be in school from age six. This means that a child does not have to be in school by age 5.

C. Other Areas That Do Not Guarantee That A Child Is Ready To Start School are:

1. High I.Q.
2. Height
3. Language proficiency
4. Early reading ability

Each area will be explained with an actual case history.

1. High I.Q.

Many people believe that a child will be successful in school because the child has a high I.Q.

CASE HISTORY - BOBBY

Bobby, a very bright September birthday child, had a great kindergarten year and a fine first grade year. Second grade was a struggle and in third grade he became disruptive. In fourth grade he was placed in accelerated classes because the school personnel felt he was "bored" and that was the reason for his acting-out behavior and underachieving. ("Boredom is all too often the response of a child who in actuality is not really up to the demands of the school situation in which he finds himself" Ames, 1978, p. 131). In fourth grade, he asked the question, "How come I do so good on standardized tests and can't do day-to-day work?" Bobby got into the drug culture in his high school years and his mother believes his untimely death was attributable to Bobby being another victim of overplacement.

2. Height

Grade placement should not be decided by the pound or the inch.

CASE HISTORY - BARRY

Barry's parents were aware of the developmental readiness philosophy so kept him out of school the year he was legally old enough to enter even though he was exceedingly tall for his age. He had successful kindergarten and first grade years, always being the tallest in his class. When he was in second grade his teacher called his parents to say that she and the principal had decided to put him in third grade because he was above grade level in reading and math and was so tall he would fit right in with the third graders. Barry's parents would not agree to this acceleration because they realized he would not be able to cope socially and emotionally in the advanced grade. Barry had successful kindergarten through eighth grade years (6 feet tall in the 8th grade) and in his first year of high school he thanked his parents for holding him out of school and not advancing him in the second grade. His words were, "You sure did the right thing! I'm right where I belong." Barry is currently a 6'4" high school senior, fully active in varsity sports, officer in clubs, and academically successful.

3. Language Proficiency

CASE HISTORY - JEREMY

Jeremy, a highly verbal August birthday boy, had a command of the English language which was truly impressive. He used long sentences and had a large vocabulary. His youngness became apparent when he balked at having to change learning stations. He only liked the Independent Station that allowed him to play with tinker toys, legos, blocks, and the train set. His personality was joyful and cooperative when allowed to do what he wanted to do. He would try to "talk his way out" of the need to follow the class routine when it was something he didn't want to do. After four weeks of observing the situation, Jeremy's teacher suggested to his mother that Jeremy would benefit more from a preschool setting rather than kindergarten. Jeremy's mother conferred with her own mother to help her make the decision about taking him out of kindergarten. To Jeremy's mother's suprise, she learned that she and her brother and sister had all been six years old when they started kindergarten and stated, "We all had good school years." Jeremy was taken out, returned to kindergarten the following year and adapted beautifully to the full kindergarten program.

4. Early Reading Ability

CASE HISTORY - BILL

Bill was a spontaneous reader in his preschool years mainly due to the modeling of the adults (parents and grandparents) in his life. They read to him and he frequently saw them reading for their own enjoyment. Bill started school with the appropriate readiness, but when his kindergarten teacher discovered he could read, she conferred with the principal and they agreed he should be placed in first grade the afternoon of his first day in kindergarten. Bill became a victim of overplacement as a result of this decision:

Academically, this high I.Q. boy "hung in there" receiving mediocre "C" grades and hearing "You could be doing better" throughout his school years from his teachers.

Physically, Bill was fitted for glasses for nearsightedness in second grade. 75 percent of children who are required to read at a young age develop vision problems (Clarizio, et. al., 1981).

Socially/Emotionally, Bill had few friends; became a loner; loved sports and music but never participated in either area, and was always the spectator.

Bill is an adult now, and his comment is, "I have suffered all my life from this one mistake."

II. HOW TO DETERMINE DEVELOPMENTAL READINESS

A. Many parents have "gut-level" feelings about their child's readiness or unreadiness for school. They only need the support and reassurance of a well-trained developmental readiness examiner to help them make the decision to delay entrance into kindergarten or to hold their child in kindergarten for a second year. Also, a trained teacher's observations and judgment of the child is an invaluable way to determine readiness. What the teacher and parents should be looking for in the child are the following characteristics:

1. Willingness to separate from parents;
2. Willingness to try tasks;
3. Cooperative behavior;
4. Willingness to answer questions;
5. Absence of crying/whining;
6. Absence of distractibility.

B. Screeing Tests

Some screening tests for developmental readiness are :

1. Gesell School Readiness Screening Test
   (This is by far the best developmental readiness test available today. The most important thing is that the examiner be carefully trained to give and evaluate the test.)
2. Inventory of Developmental Tasks - Santa Clara
3. School Readiness Survey
4. Denver Developmental
5. Developmental Indicator for the Assessment of Learning (DIAL)
6. ABC Inventory

Each of the above developmental readiness tests is efficiently used by one school or another. Parents are asked to be present during the examination. In the actual administration of the test, the examiner is not only concerned about the child's performance of the tasks required, but also the way these tasks are performed.

C. What Parents and Teachers need to know

1. Five year old boys are on the average six months less mature than five year old girls.
2. Very few children who become five in September, October, or November are ready for kindergarten.
3. Developmental age usually lags behind chronological age. It generally takes three to six months for developmental age to take place after the chronological age.
4. The child's health history has a bearing on the child's developmental maturity. Examples of a poor health history are: difficult pregnancy; difficult delivery; illness and/or surgeries in infancy.
5. Other factors that influence developmental maturity are emotional traumatic experiences in the life of the child such as: poor bonding or interaction between mother and child; separation from mother which could be due to illness; and divorce of parents is also becoming an important consideration.

III. WHAT TO DO IF READINESS IS QUESTIONED

A. Hold out for a year

The best thing to do if developmental readiness is questioned before entrance into kindergarten is to delay entrance for a year.

1. CASE HISTORY - DAVID

An orientation meeting for parents of incoming kindergarteners was held in May of the year that David was to enter kindergarten. The meeting covered class schedules, bus schedules, the kindergarten curriculum and developmental readiness. After hearing what to look for in determining if the child is ready to start school, David's mother decided that David, a November boy, was not ready to start school. She spoke to the speaker who gave the presentation on readiness and asked, "How do I unenroll my child? I know he is not ready." She was told to simply tell the principal to withdraw David's registration. (She had based her decision largely on the statement "Willingness to separate from parents" that she had heard in the presentation.) David was enrolled in kindergarten the following year and handled the full program beautifully, including an hour-long bus ride each way.

2. THINGS TO DO AT HOME WITH YOUR CHILD

a. If you are interested in improving your child's mind while waiting for sufficient maturity to be achieved, the best and most important thing you can do is something that many parents have done quite naturally and with great pleasure ever since books were invented: Read to them. As Dr. Richard Formica, a psychologist, aptly points out:

"I guarantee you that my two year old daughter, sitting in my lap as I read her a dozen of her favorite little stores, learns as much about words, ideas, people, and the world as if she could read the books without my assistance. She's also learning that learning is fun, exciting, and a time of warmth and closeness to daddy" (McCalls, by Brinley, 1983).

Some children will spontaneously read early and should be permitted to do so. Louise Bates Ames says that a child who has taught himself/ herself to read is probably already reading as much as his/her neurological capabilities allow without being involved in structured reading.

b. Another thing you can do for your child is to allow him or her to live, grow, play, think, and experience his or her own world. There is a whole three-dimensional world of acting and doing to be explored and enjoyed. There is time enough later for the two-dimensional world of paper and pencil. The child's exploration of the world around provides the child with the raw material for reading and writing. Piaget says a child best learns by first experiencing a real duck, then a stuffed toy duck, then a picture of a duck. Only then will the word "duck" have a concrete meaning to which the child can relate.

B. Remove From School

If the child has been admitted to school but shows signs of unreadiness such as: irritability; tired before the session is over; cries easily; inability to adapt to the program; then it is suggested that the child be taken out of school after a few weeks. It is important to point out that the child should not be blamed for not being mature enough to cope with the school program nor should the parents consider it a stigma if they need to make the decision to remove the child. As it has been mentioned before, developmental maturity is necessary to function successfully in school.

CASE HISTORY - STEVEN

> The school's policy where Steven was enrolled was to test August to November birthday children and any special request from parents who had reason to suspect that their child was not ready to start school regardless of birthdate. Since Steven has a July birthdate and his parents had not made such a request, Steven was not tested before entering kindergarten. The first day of school, Steven arrived crying and loudly voiced his unhappiness about being at school. A volunteer aide was able to calm him down by taking him to swing, which is how he spent his first day at school. The second day of school, Steven arrived crying again and was disruptive with his angry outbursts. He was unable to adapt to the classroom routine and only wanted to stay at the learning station that had toys. The teacher called Steven's mother on the second day of school and asked, "Have you ever suspected that Steven may not be ready for kindergarten?" His mother responded, "Yes." She agreed to bring him in for a school readiness test. Steven was unable to complete any section of the test. He showed a low frustration level, short attention span, and was easily distracted. He preferred to play with the airplane he had brought with him.

His mother took the pencil out of his hand and said to the teacher, "We will see you next year."

C. Give A Second Year

The ideal program for any school to offer is a pre-kindergarten and/or a pre-first grade class. However, since most schools are unable to offer these programs, then the following alternatives are offered:

1. Hold out for a year;
2. Let the child have a trial period but be ready to withdraw the child after a few weeks if signs of unreadiness manifest themselves;
3. Agree to retain the child for a second year in kindergarten if the child is unable to cope with the full program. The teacher can modify the program so that the emphasis is on the social/emotional development the first year and includes the academics the second year.

CASE HISTORY - WENDY

> "We retained Wendy in kindergarten against our inclination because she knew the work, and to us seemed to work well with her peer groups. Thank goodness we listened to the 'experts'. We used to hear a lot of 'I can't do it', 'I'm not smart enough', 'I hate myself', etc. Halfway through the second year of kindergarten this totally stopped. We realized that she had become a class leader and not a follower. In the first grade several of the children had been retained for a second year and even though she had done two years of kindergarten and they their second year of first grade, she began right off reading in their group. It was as though these children, by going on, had not benefitted any more than Wendy who had been retained earlier. Wendy is bright and being retained didn't change that for the better or the worse but without a good self-image she would have lacked the confidence or the willingness to do anything with it. We shudder at the thought of what cumulative damage we might have done her by sending her on just because she was 'smart' enough. Sincerely, Wayne & Katherine Hudson"

D. Parental Attitude - Key To Success

Any developmental readiness program requires the willing cooperation of parents. A parent who is told their child is not ready for school hears "failure", "stupid", "retarded", unless a careful and thoughtful job of education has preceded such a conclusion. It is important to note that, if the parents do not have positive attitudes about retention, these attitudes will be transmitted to the child.

E. Special Learning Needs

Please note that the emphasis is on retention for developmental reasons and that retention is not recommended for those students who are experiencing problems in school because of brain damage, perceptual handicaps, abnormally low I.Q. or emotional disturbances. These students are properly referred to special education services. It is of interest to note that in school districts where developmental screening and placement tests have been in effect, "special needs" at the kindergarten and primary level are virtually non-existent, except for clearly diagnosed handicaps or "true" learning disabilities.

IV. SIGNS OF OVERPLACEMENT BY GRADE

Kindergarten = cries easily;
exhaustion;
tired before session is over;
social problems;
does not enjoy group activities;
doesn't want to leave mother;

First Grade = nightmares;
bed wetting;
doesn't want to go to school;
"I'm dumb";
frequently to bathroom;
frequently to sharpen pencil;
nail biting;
can't find anything;
easily disturbed (a fly goes by);
tired;
overly stimulated;
irritable at home;

Second Grade = dawdles;
sick at stomach;
doesn't finish work;
day dreams;
below grade level in learning;
parent and/or teacher says child could do better if child would try;
trouble relating to peers;
nearsightedness;

Third Grade = hates school;
can't finish work;
few friends;
poor self image;
"I'm dumb";

problem student; (It is common for educators to consider this a matter of discipline rather than one of overplacement.)

won't do homework;

"I can't";

"I won't";

tired and miserable, except on "no school" days;

headaches;

stomach aches;

Fourth Grade = many of the above;

loner;

won't go out for organized sports (watch at recess)

no joy in learning.

Other considerations:

1. Drop-outs begin in kindergarten.
2. Scandinavian Countries: Believing that there is no great rush to have children get started in school, the Scandinavian countries as a rule, do not begin reading instruction until children are seven years of age. Not only do Scandinavian boys and girls read as well as our children, but there are far fewer children there than in this country who experience reading problems and later need remedial help.
3. It is never too late for a slow-down year. As a reference to this topic, please consult Is Your Child In The Wrong Grade? by Louise Bates Ames (1978), which is available in most public libraries.

4. A child may catch up as a student, but fall behind as a person. The child may seem to catch up because s/he pushes the intellectual growth at the expense of other areas of development - physical, emotional, social.

V. QUESTIONS AND SHARINGS

Depending on the make-up of the group it is sometimes beneficial to have parents share their experiences on developmental readiness decisions that they have had to make. This would be the proper time to call on them to share their experiences. If no parents have been scheduled for a presentation, the question and sharing period is open to the audience.

Materials to have available for the PRESENTATION TO PARENTS AND TEACHERS:

1. Books:

   Is Your Child In The Wrong Grade? Louise B. Ames, 1978. Modern Learning Press, Lumberville, PA.

   School Readiness, Ilg et al., 1979. Harper & Row, New York.

   Don't Push Your Preschooler, Ames and Chase, 1981. Harper & Row, New York.

   Child Behavior, Ilg. et. al., 1981. Barnes & Noble Books, New York.

   The Read-Aloud Handbook, Trelease, 1982, Penquin Books, New York.

2. Quizzes and Pencils

3. Parent Summary Sheet (handouts)

4. Checking For Overplacement (handouts)

5. Pamphlet "A Gift of Time", Gesell Institute of Human Development.

6. Magazines:

   Newsweek March 28, 1983
   McCall's November, 1983

PRESENTATION TO THE SCHOOL BOARD

Introduction

A. Opening Remarks

B. Outline of Presentation

The areas to be covered are:

(1) Review of literature pertaining to retention;

(2) Relationship of developmental readiness and school success;

(3) How to determine developmental readiness;

(4) What to do if developmental readiness is questioned;

(5) How the developmental readiness philosophy has been implemented at Webster School.

Some parents present will also share their own personal experiences on the developmental readiness of their particular child. And finally, recommendations on how to set up a developmental readiness program will be offered to the Board.

I. Review of literature on retention

Extensive research has been undertaken to evaluate grade repetition. In the 1950's, for example, John Goodlad published a considerable amount of research on the ill effects of nonpromotion, being particularly concerned with adverse emotional effects. His work, and that done in collaboration with Anderson, concludes that highly unfavorable school attitudes after nonpromotion might be associated with continuing negative behavior. Studies in the 1960's and 1970's seem not unlike those of earlier decades: they tend to consider retention as malpractice. However, in 1970, Reinherz found that retention was more beneficial to first grade pupils than to second and third grade students. The greatest contribution of this study is that a clear indication of potential problems can be detected while pupils are still in kindergarten. Current writings and research suggest that many pupils who have school-related problems are "curriculum handicapped" rather than educationally handicapped. Elkind has documented the conclusion that learning disabilities often result from placing the child into the educational program before maturational readiness is present. Therefore, we have come from a totally negative viewpoint on retention to the belief that retention can be beneficial if done for developmental readiness reasons. Many people believe that intelligence is the main factor for school success. Others will simply settle for the legally determined chronological age for school entrance. It is the purpose of this presentation to make a plea for the use of developmental readiness as the standard to determine school readiness. Developmental readiness is defined by Carll and Richards (1977) as the age at which a child is behaving as a total organism - a functioning age. A child might very well be functioning at a six or even seven-year-old level intellectually or in some other aspect of his development, but a composite of his whole development might place him at a five-year-old functioning age. Developmental age is the age where the child sustains - where he is "grounded".

The pioneering works of Piaget and Gesell, which were the result of a lifetime of systematic observations of children, clearly indicate that a child's mental growth develops in a predictable pattern. It is based on this observation that they started to be concerned about the education of children on the basis of their developmental readiness instead of their chronological age. The work of Piaget also suggests that sufficient maturation should have been achieved around the five to seven year age range to justify the traditional practice of beginning formal intellectual training at about age six. However, since each child progresses at his/her own rate, there is a need to ascertain the actual developmental readiness of each individual child.

Sinatra (1983), moreover, points out that for any learning experience to be effective, it has to take place when the brain has reached a sufficient maturation to retain what has been learned. He explains that the whole process of maturation is the result of the process of myelination. Myelin, a whitish substance, which is absent at birth, gradually begins to coat the nerve fibers allowing controlled muscular action and integration of the activities of the two hemispheres of the brain.

In order to determine if a child has reached sufficient maturity to start formal learning in a school enviroment there are several screening tests available, for example: School Readiness Survey; Inventory of Developmental Tasks; Gesell School Readiness Screening Test. Research has shown these tests to be effective in determining readiness for starting school.

Weinstein (1969) enumerated some effects of school unreadiness due to developmental immaturity. The child that is developmentally immature is:

(1) less ready to learn academic skills
(2) less able to sit quietly
(3) less able to concentrate
(4) less able to follow directions

(5) less able to share teacher's attention
(6) less able to work neatly with pencil and crayon
(7) more likely to be referred for emotional disturbances
(8) more likely to be rejected by classmates

Ogletree (1972) adds to the list the following:

(1) Children forced into academic learning beyond present capacity or motivation easily become turned off to school.
(2) Early learning is not only inefficient, but there are indications that it results in lower plateau of performance.
(3) Premature learning often creates a mental blockage, lowering the ceiling for subsequent development of a particular skill.

What to do when developmental readiness is questioned

When developmental readiness is questioned, experts recommend delaying entrance into school. Hedges (1977) states that there is overwhelming evidence for delaying school entrance of children who are developmentally unready. Campbell (1980) points out that retention in kindergarten of an unready child is far preferable to retention in later years - even first grade. This is also supported by Donoforio (1977) who considers repetition of kindergarten for developmentally unready children as the initital and most important step in preventing failure in later years.

Webster School's Program

In the past four years, Dr. Gary Duke, principal of Webster School, has implemented the philosophy of developmental readiness as a criteria for grade placement.

The program is organized along the following lines:

(1) An orientation meeting for parents of incoming kindergarteners is held in May of each year, for the purpose of acquainting parents with the developmental readiness factor as a prerequisite for school success.

(2) All children born August-November are tested for developmental readiness because a high percentage of these children are developmentally unready. Also, a special request may be made by parents who are concerned about the readiness of their child regardless of the child's birthdate.

(3) After the test is given, with the parent(s) in attendance, an evaluation is given to the parents as to the child's overall readiness for school. The parents are counseled on the most appropriate decision for their individual child.

Presently available data about Webster's Developmental Readiness Program

Twenty six pupils, who are still at Webster School as of June 1983, have been retained either in kindergarten or first grade and are presently in grades one or two. Of the twenty six retainees, none were below grade level on the 1983 CTBS. Fifteen of the twenty six were above the eightieth percentile. Ten of the twenty six were above the ninetieth percenitle.

A questionnaire (a copy of which is in your possession) was sent out to the parents of the twenty six retainees to ascertain the parents' feelings on the effectiveness of Webster School's retention policy. Of the nineteen that returned the questionnaires, eighteen said they would do it over again and one said that she would not.

An update of the CTBS results of January 1984 give further evidence of the apparent success of the program:

93% of first graders,

85% of second graders,

and 95% of third graders scored above grade level. The importance of these scores and their relationship to the developmental readiness factor can be deducted from a comparison with the results of children in grade four, five and six, who were admitted before the developmental program was instituted:

57% of fourth graders;

59% of fifth graders;

and 66% of sixth graders scored above grade level.

Parents Sharing

We will now partake in the first-hand experiences of some parents who were involved in the difficult decision to retain their child for developmental reasons. Each parent will include the following information in the sharing:

-Age of child upon entrance into school;

-Their reaction to the recommendation that their child be retained;

-How they personally reached the decision to retain;

-What were the results of retention.

Recommendations for setting up a Developmental Readiness Program

As you have heard, these parents have found that retention in kindergarten or first grade has been greatly beneficial to their children. Many other parents have experienced this same beneficial effect. Since SB 813 has mandated that each school board set a policy on retention it is recommended that this policy be applied first and foremost to kindergarten and first grade students who are found to be developmentaly unready for school. If the school board decides to implement a policy for retention in kindergarten or first grade for developmental reasons, it is recommended that the following steps be taken to assure the success of the retention policy:

1. Careful education of teachers and adminstrators of the program has to precede its implementation. Careful education of parents and of the school community has to take place before proper planning can procede any further. "It is worse to implement a developmental program without proper planning and a careful timetable, than to implement no program at all."
2. The adoption of a developmental screening and placement program means and requires a permanent readjustment of philosophy at all levels of the school district organization. This takes time and cannot be done overnight.
3. After the developmental screening and placement program has been adopted and implemented, it still requires yearly vigilance on the part of readiness personnel, kindergarten teachers and interested parents to make sure the program is administred and run properly. (Robert Wood, 1981).

Closing Remarks

Thank you for alloting the time for this presentation. In summary, I would like to leave the Board with these two important statements:

1. Developmental readiness for school success can be effectively tested.
2. Failure in school due to developmental unreadiness can be predicted and prevented.

I would like, therefore, to encourage the Board to adopt a policy of developmental readiness screening for all incoming kindergarteners. Secondly, in keeping with SB 813, to develop a policy for retention in kindergarten or first grade if developmental readiness is questioned. And thirdly, that a developmental readiness program be implemented district wide.

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

As shown in the review of pertinent literature, the problem of academic failure and retention has been the object of a great number of studies. All of these studies, at least up to 1952, seemed to conclude that only ill effects could be expected from nonpromotion, particularly because of adverse emotional effects and continuing negative behavior (Goodlad, 1959). These studies, however, were reviewed by Jackson (1975) and he found that up to mid-1973, they were "quite inadequate" for making valid inferences about the negative effects of grade retention because they lacked designs and methodologies that would yield meaningful results.

In 1954, Lobell had already noticed that retention, guided by definite criteria, could bring about success for a larger percentage of children than previously available data might lead one to suspect, and further studies were undertaken to identify and specify what type of child seemed to benefit most from retention (Chase, 1968; Scott and Ames 1969; Reinhertz and Griffin, 1970). These studies found that the child who benefited most from retention was a normal child - one who had no abnormally low intelligent quotient, no emotional disturbance or perceptual handicaps, - but who was not as mature for school work as his/her chronological age would indicate.

Basing themselves on the research and findings of Piaget and Gesell, these educators point out that failure in school by "immature" children can be avoided by delaying entrance into kindergarten and it can be remedied by retention, particularly in kindergarten or in the early grades (Scott and Ames, 1969; Caril and Richards, 1977; Hedges, 1977; Campbell, 1980; Ames and Chase, 1981; and Turley, 1982).

Conclusions

The review of developmental readiness literature confirms what had already been pointed out by Piaget and Gesell that each child matures at his/her own rate and the chronological age gives no assurance of the child's readiness to undertake school work (Hedges, 1977; Ilg et. al., 1979; Ames and Chase, 1981; Turley, 1982).

Developmental readiness is seen as a total development, a holistic process involving factors from all areas of personality (Brenner, 1971; Ogletree, 1972; Carll and Richards, 1977; Ames, 1978; Ames and Chase, 1981; Turley, 1982). Basing themselves on the findings of Piaget and Gesell and supported by the recent findings on the myelination process (Dobson, 1981; Sinatra, 1983), developmental readiness educators point out that intelligence quotient, physical size, language proficiency, reading ability by themselves do not guarantee maturity nor do they assure readiness to undertake school work (Carll and Richards, 1977; Ames and Chase, 1981; Turley, 1982; Sinatra, 1983).

Although children tend to mature physiologically and psychologically along forseeable lines (Piaget, Gesell, Sinatra), those children who are delayed in overall maturation can be predicted to fail academically (DeHirsch et al., 1966; Hedges, 1977; Ames and Chase, 1981; Turley, 1982; Sinatra, 1983). Reasons given for delay in maturation range from physical causes (such as difficult delivery, early childhood sicknesses and surgeries), to personality factors (such as self-concept, character, attitudes toward others . . .) and family factors (such as cohesiveness of the family, parenting, relationship with siblings, emotional unrest, divorce of parents, seperation from parent(s), transiency, literacy of siblings and parents, socio-economic status of family) (Brenner, 1971; Lieberman, 1980; Oberklaid and Levine, 1980; Sinatra, 1983).

Older children seem to perform better in school than younger ones even though the latter may have a higher I.Q. (Davis et. al., 1980; Campbell, 1980). However, oldness by itself, if not accompanied by maturation of the whole child, is no guarantee of developmental readiness and, therefore, of school success (Chip Wood, 1982).

Repeating for immaturity reasons is viewed as a positive experience for the child who is thus given "the gift of time" to grow and mature (Chase, 1968; Spillman and Lutz, 1980; Chip Wood, 1982; Turley, 1982), and the initial and most important step in preventing future failures, particularly when parents have a positive attitude toward retention (Chase, 1968; Donofrio, 1977; Hedges, 1977; Spillman and Lutz, 1980; Campbell, 1980; Ames and Chase, 1981; Robert Wood, 1981; Turley, 1982). Studies of available developmental readiness screening tests, particularly of the Gesell School Readiness Screening Tests, have proven that they can accurately predict future academic success or failure (Kaufman, 1979; Chip Wood, 1981; Turley, 1982).

Recommendations

1. Since California SB 813 and AB 3408 direct the school districts of the state to set up "proficiency standards" for promotion and district policies for retention, it is of utmost importance that the voluminous literature on developmental readiness be carefully studied and taken into consideration before any district policy on retention is drafted and implemented. Since the bulk of developmental literature is overwhelmingly in favor of delaying entrance in kindergarten or retention in the early primary grades when unreadiness for school work is ascertained, particularly when this is achieved by means of reliable screening tests, it seems logical to conclude that any policy on

retention should be directed first of all to incoming kindergarteners and to the early primary grade students. It is useful to bear in mind that because developmental readiness for school can be successfully tested and academic failure can be effectively predicted, it would be most advantageous to begin with a district-wide developmental screening test policy for all incoming kindergarten students to ascertain their readiness for school work. It would also be most advantageous to set policies for retention in kindergarten or early primary grades whenever the student, even if academically successful, shows signs of overplacement - because this student might "burn out" and develop negative attitudes toward school and learning, thus performing academically far below his/her intellectual capabilities.

2. According to developmental readiness literature, a good case could be made for endeavoring to bring about changes in the state-mandated chronological age for entrance in school. As developmental literature points out, appealing to the findings of Piaget, Gesell and more recent research, readiness for school should not be based on chronological but developmental age. However, if nothing could be done to bring about this admittedly radical change from chronological to developmental age for mandated school entrance, efforts should be directed toward changing the cut-off date from December 2 to August 31. Thus, the child would be at least chronologically five-years-old when he enters school in September.

3. School districts would do well if, to meet the needs of yet unready kindergarten or first grade students, they would institute "transitional classes" such as pre-kindergarten and pre-first. Thus, the need for withholding the child from kindergarten or first grade would be eliminated by allowing him/her to enter in the transitional class.

4. Since an enormous amount of research has already been produced and evaluated on the developmental readiness factor and more recent studies and research on the myelination process seem to relate to and support the developmental philosophy, it becomes necessary to make this valuable information available to parents, teachers, school board members and any person who is or will be involved in education. Thus, it would seem appropriate that lectures, seminars, and workshops be given for parents, teachers, school administrators and boards, as well as to the general population of the school district in order to acquaint them with the developmental readiness factor as a prerequisite for school success and to disseminate all available and pertinent information. In this conjunction, it seems logical that college students, particularly those seeking a degree in education, be given sufficient exposure to the developmental readiness philosophy with the institution of specific courses or at least with some time devoted to it during the already scheduled courses.

5. Finally, the following questions are offered as possible areas for further research:

a. What is the exact relationship between developmental readiness and the myelination process? Can it be proven that the developmental stages of Piaget and Gesell are the extrinsic evidence of internal myelination process?

b. What are the causes of myelination arrest? Are they physical, emotional, social? A combination of all the above? Or, in other words, what is the cause-effect relationship, if any, between physical, emotional, social difficulties of a child and his/her delay in maturation?

c. Children who are high achievers in grades one through six are sometimes double promoted. If this is done only on academic performance, what effect, if any, will this overplacement have on the total child? Negative? Positive?

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APPENDIX I

READINESS QUIZ
ANSWER BY MARKING TRUE-FALSE

1. At least 33% of 5-year-olds are not ready for the standard kindergarten program.

2. We can speed up the rate of maturation by "doing things" to get the child ready.

3. Most parents feel guilty if their child is not ready for school.

4. Some symptoms of immaturity are obvious, but others are more dificult to spot.

5. Most parents think they must send their child to school just because s/he is 5-years-old before December 2nd.

6. Most children will outgrow their slower start and "catch up" in a later grade.

7. A child who is retained will suffer emotionally.

8. It is never too late to place a child in the correct grade.

9. A child's size should be a major factor in deciding retention.

10. Boys and girls mature at the same rate.

APPENDIX II

Parent Summary Sheet

You're an original! No one else has the exact interests, strengths, or weaknesses that you have. Even though you share similar needs and desires with those around you, you're unique, and that's what makes life interesting and worth celebrating.

From birth, babies are persons with their own special qualities. Infants demand to be treated as individuals and continue to express their individuality throughout the teen years and beyond.

Mother Nature is a wise teacher. We can benefit by following her way of allowing life forms to grow in their own time. Accomodating individual differences in a family can be difficult, but it is still a most worthwhile goal.

EACH CHILD IS UNIQUE AND EACH HAS AN INDIVIDUAL RATE OF DEVELOPMENT

A child's learning is based on three factors: (Ames,et.al., 1972 *Stop School Failure*)

1. Developmental rate.
2. Innate personality.
3. Environmental factors, including parent interaction.

SIX AREAS OF DEVELOPMENT:

1. *Gross motor*--coordination of large muscles.
2. *Fine motor/perception*--coordination of small muscles.
3. *Self-help*--independent care of individual needs.
4. *Social/emotional*--getting along with others, handling feelings.
5. *Language/communication*--listening, understanding, speaking.
6. *Cognitive thinking*--problem-solving, understanding relationship of self with objects.

ENVIRONMENTAL FACTORS:

1. Parents should try to accept the child the way he or she is, and his or her uniqueness.
2. Parents should provide structure and the right amount of freedom for the child to grow and be successful.

INNATE DIFFERENCES:

Maintained from birth to childhood

1. Activity level--how much the child physically moves.
2. Regularity--degree of regularity of body functions.
3. Approach or withdraw--characteristic response to new situation.
4. Adaptability--ease or difficulty with which a child adapts to change beyond his/her initial response.
5. Sensory threshold--how sensitive the child is to external stimuli.
6. Quality of mood--how the child generally responds.
7. Intensity of reaction--energy of a response.
8. Distractibility--the degree babies or children are able to concentrate.
9. Persistence--attention span and ability to continue an activity when difficulties are presented.

APPENDIX III
Checking for Overplacement

The behaviors listed below are often exhibited by children in kindergarten, 1st, 2nd, or 3rd grade who have been overplaced or have some type of learning difficulty. If you have a child who consistently "checks" in five areas or more, s/he should be brought to the attention of the Principal or Lead Examiner for:

1. Another look at his/her Development Level
2. A possible psychological referral

__ 1. Is absent a great deal
__ 2. Gets along poorly with others
__ 3. Daydreams
__ 4. Seldom finishes work
__ 5. Becomes tired before others
__ 6. Has a low frustration level
__ 7. Work is erratic:able some days and not others
__ 8. Cries easily
__ 9. Has short attention span
__ 10. Is easily distracted
__ 11. Is restless
__ 12. Has many imaginary or minor ailments:lots of colds
__ 13. Seems to not really try: you feel "he could do it if he just tried"
__ 14. Has difficulty in controlling his pencil:"messy"
__ 15. Doesn't follow oral directions
__ 16. Forgets more than most children
__ 17. Loses track of personal belongings
__ 18. Doesn't know left and right
__ 19. Reverses letters and numbers
__ 20. Infantile speech
__ 21. Tense mannerisms
__ 22. Teething is considerably behind that of others in his class
__ 23. Most of his friends are chosen from children in a lower grade
__ 24. He looks and acts much more babyish than the others
__ 25. Does desperate things such as not finishing his paper and then scribbling all over it

The child's parents are also an excellent source of information. If the parents report their child consistently exhibiting any of the behaviors below, it is reason to take a closer look.

__ 1. Dislikes school
__ 2. Complains school is too hard
__ 3. Seems unduly fatigued when he gets home from school
__ 4. His behavior and disposition have shown a marked change for the worse since starting school
__ 5. Is a "different" child in the summer when school responsibilities have been removed
__ 6. Has terrible trouble almost every day in getting ready for school
__ 7. Complains of stomach aches or is actually sick to his stomach before school

Adapted from
IS YOUR CHILD IN THE WRONG GRADE
by Louise Bates Ames

Adapted by
Lafayette School District
Lafayette, California

APPENDIX IV

Webster School
36477 Ruth Avenue
Madera, California 93638

Dear Parents,

We are evaluating our retention policy at Webster School. The academic progress of students who had a "catch-up" year has been very good as reflected by CTBS scores one and two years later. We are very interested in your viewpoint as we make decisions regarding our philosophy and school policies.

Please take a minute to complete this questionnaire and return it in the enclosed envelope.

Thank you,

Gary Duke

1. How would you rate your child's behavior today with his bahavior before retention?

____ much better
____ better
____ no change
____ worse
____ much worse

2. How does your child's attitude toward school now compare to his attitude before retention?

____ much better
____ better
____ no change
____ worse
____ much worse

3. How does your child relate with his classmates now compared to before retention?

____ much better
____ better
____ no change
____ worse
____ much worse

4. How is your child's self concept now compared to before retention?

____ much better
____ better
____ no change
____ worse
____ much worse

5. If you were to make the decision over, would you retain your child?

____ Yes ____ No

Your comments will be appreciated:

____

____

____

____

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